



AGENDA

MEETING OF THE
UTAH STATE BOARD OF REGENTS

April 19-20, 2001

**Utah State Board of Regents
Office of the Commissioner
of Higher Education
355 West North Temple
3 Triad Center, Suite 550
Salt Lake City, Utah 84180-1205**

**AGENDA
MEETING OF THE STATE BOARD OF REGENTS
COLLEGE OF EASTERN UTAH
STUDENT CENTER
PRICE, UTAH**

Thursday, April 19

6:30 p.m. DINNER MEETING – STATE BOARD OF REGENTS, COLLEGE OF
 EASTERN UTAH BOARD OF TRUSTEES, PRESIDENT JONES
 AND COMMISSIONER FOXLEY
 CEU Prehistoric Museum

- Open Discussion
- Executive Session

Friday, April 20

MEETINGS OF BOARD COMMITTEES

8:00 a.m. - Academic and ATE Committee
10:00 a.m. Multipurpose Room – West End

ACTION:

- | | |
|---|-------|
| 1. Utah State University – Master of Science Degree in Human Resources | Tab A |
| 2. Utah State University – Master of Professional Studies Degree in Horticulture:
Specialization in Water Efficient Landscaping | Tab B |
| 3. Utah State University – Master in Dietetics Administration | Tab C |
| 4. Utah Valley State College – Bachelor of Science Degree in Nursing | Tab D |
| 5. Salt Lake Community College – Biotechnology Technician Associate of Applied
Science Degree | Tab E |
| 6. Snow College – Associate of Applied Science Degree in Desktop Publishing/
Web Design and One-Year Certificate in Desktop Publishing | Tab F |

NON-ACTION:

- | | |
|--|---------|
| 7. Utah Valley State College – Baccalaureate Degrees in Science and Math | Tab G-1 |
| A. Bachelor of Science Degree in Chemistry | Tab G-2 |
| B. Bachelor of Science Degree in Mathematics | Tab G-3 |
| C. Bachelor of Science Degree in Physics | Tab G-4 |

INFORMATION CALENDAR:

- | | |
|--|-------|
| 8. Information Calendar, Academic and Applied Technology Education Committee
Snow College South – | Tab H |
|--|-------|

- A. Name Change from Cosmetology Diploma to Cosmetology Certificate
- B. Combination of Office Technician with Speedwriting and Office Technician Emphasis Certificates and Name Change to Transcription Specialist Certificate
- C. Name Change from Office Technician with Computer Applications Emphasis Certificate to Computer Applications Specialist Certificate
- D. Name Change from Administrative Assistant with Medical Emphasis A.A.S. Degree to Administrative Medical Assistant A.A.S. Degree
- E. Name Change from Administrative Assistant with Legal Emphasis A.A.S. Degree to Administrative Legal Assistant A.A.S. Degree

CONSENT CALENDAR:

- 10. Consent Calendar, Academic and Applied Technology Education Committee Tab I
 - A. University of Utah – Combined BS/Master’s Program in Electrical Engineering
 - B. Weber State University – Online Bachelor of Science Degree in Computer Engineering Technology
 - C. Weber State University – Online Bachelor of Science Degree in Electronic Engineering Technology

8:30 a.m. - Finance and Facilities Committee
 10:00 a.m. Alumni Room

ACTION:

- 1. Utah State University – Change in Enrollment Reporting Status of Remedial Classes and Proposed Revision to Policy R506, *Budget-related and Self-supporting Courses* Tab J
- 2. College of Eastern Utah – Campus Master Plan Tab K
- 3. Salt Lake Community College – Lease of Downtown Instructional Facility Tab L
- 4. Proposed Revision to Policy R561, *Accounting and Financial Controls* Tab M
- 5. Proposed Revision to Policy R610, *Board of Directors of the Utah Higher Education Assistance Authority* Tab N

INFORMATION:

- 6. University of Utah – University Hospital Expansion Update Tab O
- 7. Governor Leavitt’s Administrative Actions Regarding 2000-2001 Capital Development Funding Tab P
- 8. Student Financial Aid – UHEAA Board of Directors Report Tab Q

CONSENT:

- 9. Consent Calendar, Finance and Facilities Committee Tab R
 - A. OCHE – Monthly Investment Report
 - B. 2001-2002 Initial Work Programs

10:00 a.m. - COMMITTEE OF THE WHOLE AND REGULAR BOARD MEETING
12:00 noon Multipurpose Room – East End

1. Utah State University – Second Tier Tuition Increase Proposal Tab S
2. ATE Update Tab T
3. Engineering, Computer Science & Technology Funding Update Tab U
4. Report of the Chair
5. Report of the Commissioner
6. Reports of Board Committees
 Academic and ATE Committee (Tabs A - I)
 Finance and Facilities Committee (Tabs J - R)
7. General Consent Calendar Tab V

12:00 noon - WORKING LUNCH AND PLANNING SESSION
3:00 p.m.

- Planning Issues Tab W
- A. Utah Census 2000 – Implications for Higher Education
 - B. Review of Master Planning Issues
 - C. Update and Discussion of AdviseUtah Web Site

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In compliance with the Americans with Disabilities Act, individuals needing special accommodations (including auxiliary communicative aids and services) during this meeting should notify ADA Coordinator, at 355 West North Temple, 3 Triad Center, Suite 550, Salt Lake City, UT 84180, or at 801-321-7124, at least three working days prior to the meeting. TDD # 801-321-7130.

MEMORANDUM

April 11, 2001

TO: State Board of Regents

FROM: Cecelia H. Foxley

SUBJECT: Utah State University Master of Science Degree in Human Resources – Action Item

Issue

Utah State University (USU) officials request approval to offer a Master of Science Degree in Human Resources (MS HR), effective Summer, 2001.

Background

The field of Human Resource Management has changed over the years to include a requirement for business skills in areas such as finance and economics in addition to traditional skills such as human resource planning, recruitment, benefits and compensation, etc. A study conducted for the Society for Human Resource Management (SHRM) indicates that general managers want human resource managers to be knowledgeable about business topics, and to become strategic partners in the organization.

USU currently offers a Master of Social Science Degree in Human Resource Management (MSS/HRM) both on-campus and through technologically delivered instruction. This is a social science degree that does not require students to take core business courses. The proposed program will replace the current on-campus program, and will require that students without an undergraduate degree in business and appropriate work experience take business core courses and participate in an internship. This approach will provide students with the combination of human resource management and business skills that are increasingly in demand in the workplace.

Because not all classes required for the proposed program are currently available through distance delivery, the current MSS/HRM Program will continue to be offered via satellite for the time being. When all courses for the proposed program are available through distance delivery, officials at USU intend to phase out the existing distance program.

Applications for the current on-campus program exceed the number of seats available; therefore, enrollment is expected to remain stable. The demand for human resource

professionals continues to grow at the local, state and national levels. State and national projections show an increasing demand for employees in this field. Graduates of the current program have been placed in a variety of businesses locally and across the country, including Ryder, Hewlett/Packard, Intermountain Health Care, Merck, Sunshine Terrace, Lazy Boy, U.S. Air Force, Moore BSC, and the City of Logan.

A budget is currently in place for the existing program, and no additional state funds will be required. No additional contract faculty, staff, equipment, or library/learning resources are needed.

Policy Issues

No concerns were received from other USHE institutions regarding the proposed program.

Options Considered

After the Regents have reviewed the proposal from Utah State University to offer a Master of Science Degree in Human Resources, they may raise issues, request additional information, deny the request or approve the request.

Commissioner's Recommendation

It is the recommendation of the Commissioner that the Regents approve Utah State University's request to offer a Master of Science Degree in Human Resources.

Cecelia H. Foxley, Commissioner

CHF/MAP/LF
Attachment

Academic and Applied Technology Education Committee

Action Item

Request to Offer a Master of Science Degree in Human Resources

Utah State University

Prepared for
Cecelia H. Foxley
by
Michael A. Petersen
and
Linda Fife

April 11, 2001

SECTION I

Request

Utah State University officials request approval to offer a Master of Science Degree in Human Resources effective Summer Semester, 2001. This program was approved by the institutional Board of Trustees on January 26, 2001.

SECTION II

Program Description

Complete Program Description - The proposed MS Degree in Human Resources prepares students for professional careers in the field of Human Resource Management. Graduates of the program will be prepared to assume a strategic role in helping organizations gain competitive advantage by building employee commitment, competence, and effectiveness. Required subject areas include human resource planning, recruiting, selection, placement, compensation and benefits, performance management, career planning, training and organizational development, labor and employee relations, ethical/legal employment practices, statistical methods, and program evaluation.

The program will require students to meet College of Business core requirements. Students without sufficient relevant work experience will also be required to complete an approved internship. The Executive in Residence in the Department of Management and Human Resources (MHR) and/or the members of the program Steering Committee will serve as facilitators to help secure internship opportunities. As the current program, the proposed program will prepare students to take the Human Resource Certification Institute (HRCI) examination. All students are strongly encouraged to take this examination; however, because the exam is administered only twice yearly, students will not be required to pass the exam as a condition of graduation.

The MS Degree in Human Resources requires 30 to 33 credits beyond the business core. The total number of credits is 51 for students without an undergraduate business degree or commensurate work experience. The program qualifies under the Graduate School's Plan C option (non-thesis), where an integrative project is carried out as part of a capstone course.

The curriculum for the proposed program, including course descriptions, is included in Appendix A. A sample class schedule can be found in Appendix B.

Purpose of Degree - In recent years, the field of Human Resource Management has evolved. Human resource managers are increasingly expected to possess business skills in areas

such as finance and economics as well as expertise in human resource planning, recruitment, benefits and compensation, etc. USU currently offers a Master of Social Science in Human Resource Management (MSS/HRM) Degree both on campus and through distance education. The current MSS/HRM format meets the educational needs of students who have a business background, but it does not meet the needs of students who have an interest in becoming professional human resource managers but have little business training and little related work experience. The proposed MS Degree in Human Resources will provide these students with a grounding in basic business subjects, preparing them for employment in upper levels of business organizations. Officials at USU intend to continue to offer the technologically delivered MSS/HRM Degree until all courses required for the proposed MS Degree in Human Resources can be made available through distance delivery. At that time, it is expected that the current program will be phased out.

Admission Requirements - Students will be required to submit undergraduate transcripts and scores on either the Graduate Record Examination (GRE) or the Graduate Management Admissions Test (GMAT). Prospective students may request information on expected test performance standards for acceptance. TOEFL scores are required for candidates from abroad, with a minimum of 550 deemed acceptable. Applicants are expected to have strong written and oral communication skills.

The program will be open to students from all undergraduate majors. Students must be matriculated before taking coursework leading to the degree. The program is designed for students to progress in a cohort. New cohorts start each Fall Semester. However, students without a business undergraduate degree must complete business core requirements as outlined in the degree requirements prior to Fall Semester. Applications for the program should be received by March 30. Those seeking financial assistance should submit applications no later than March 15.

Student Advisement - The MHR Department currently has one student advisor with a primary responsibility to advise graduate students, and there is an advising process already in place. The advisor works individually with students regarding admission requirements, development of a written course of study, evaluation of the student's business background to determine the need for an internship, and establishment of an expected graduation date. The MHR Department advisor is available to students virtually every day and is well trained to handle individual student needs.

External Review and Accreditation - The College of Business is accredited by the American Assembly of Collegiate Schools of Business (AACSB) and the International Association for Management Education. The newly revised program will fall within the accreditation requirements of AACSB. Officials at USU believe the proposed program meets the accreditation requirements of AACSB and is consistent with other accredited programs in the College of Business such as the Master of Business Administration, Master of Accounting and Master of Business Information Systems. Since no new courses will be added, and student

faculty ratios are not expected to change, the new MS will not affect the College's accreditation. The next scheduled accreditation review will be in 2007.

Projected Enrollment - Total FTE within the Department of Management and Human Resources is not expected to change. FTE enrollments and faculty ratios are presented below for the past three years. On-campus enrollment is expected to remain stable at between 15 and 20 students in each year's cohort; therefore, the numbers below are expected to remain approximately at their current levels over the next five years:

Year	1996-97	1997-98	1998-99
Student FTE Enrollment (graduate only)	67.73	88.00	79.20
Faculty FTE (graduate only)	2.77	3.15	3.49
Student-Faculty Ratios (graduate only)	24.45	27.94	22.69

Faculty - There are currently two open faculty positions, resulting from resignations, that are expected to be filled next year. With these hires, the current MSS/HRM Program will be adequately staffed. The shift to the new MS in Human Resources Program will require some marginal adjustments of assignments, but given current enrollment projections, no new faculty will be required in the first five years. The faculty in the Department of Management and Human Resources is well known both nationally and internationally for their expertise. A list of current faculty members who will support the proposed program is included in Appendix C.

Officials at USU expect the faculty development processes that are currently in place to continue into the future. Faculty development includes the following activities: faculty teaching in the HRCI preparation course; attendance at national and international meetings; leading edge research on human resources issues; personal and professional contact with leading Human Resource Managers and Vice Presidents of Human Resources throughout the country; participation in the Partners in Business annual Human Resource seminar; frequent literature reviews on emerging topics, Shingo Prize site visits and faculty brown bag luncheons aimed at learning about each other's expertise.

Staff - No additional secretarial support or staff will be needed.

Library - Current library resources are adequate for the program.

Learning Resources - The revised program requires an internship, which will necessitate more time and effort to develop internship opportunities for students. Inclusion of an internship requirement is consistent with ongoing efforts in the College of Business.

SECTION III

Need

Program Necessity - In recent years, the field of Human Resource Management has evolved to include a requirement for expertise in business areas such as finance and economics. A study conducted for the Society for Human Resource Management (SHRM) indicates that general managers want human resource managers to be able to speak the language of business and to become strategic partners. As previously mentioned, USU currently offers a Master of Social Science Degree in Human Resource Management (MSS/HRM) both on campus and through distance education. Many students have substantial work experience and business training, and the current MSS/HRM format meets their needs. However, there are also students who have an interest in becoming professional human resource managers that do not have business training or work experience. The proposed MS Degree in Human Resources adds these components — changes that will better prepare students with limited business and professional experience to enter professional human resource management positions.

The courses offered by the MHR Department will not change under the proposed format. Because not all of the courses necessary for the proposed MS Degree in Human Resources are available through distance delivery, the current MSS/HRM Program will continue to be offered, via distance, for the time being. When the complete program can be technologically delivered, officials at USU plan to phase out the MSS/HRM Program.

Labor Market Demand - The demand for human resource professionals continues to grow at the local, state and national levels. According to the Utah Department of Workforce Services, between 2000-2005 there will be 250 annual job openings for human resource managers and human resource specialists. The national statistics from the Department of Labor indicate that through 2008 there will be a 10-20 percent increase in demand for human resource positions. In some states, the demand is even higher. For example, California projects that there will be a 38 percent increase in the demand for human resource positions. Graduates of the current program have been placed in a variety of businesses locally and across the country, including Ryder, Hewlett/Packard, Intermountain Health Care, Merck, Sunshine Terrace, Lazy Boy, U.S. Air Force, Moore BSC and City of Logan.

Student Demand – The proposed program is a modification of an existing degree to better suit students who come into the program without an undergraduate business degree or related work experience. Student demand for the current program is evidenced by the fact that inquiries and applications outpace student slots, the HRCI preparation class that is offered continues to be filled to capacity, and the number of students involved in the Society for Human Resource Managers (SHRM) has doubled this past year. Further, *HR Magazine* recently reported that base salaries for human resource professionals continue to rise faster than overall salary increases in the United States. This should make a MS HR Degree highly desirable.

Similar Programs - There is no other Master's Degree in Human Resources offered by universities in the Utah System of Higher Education (USHE), Brigham Young University (BYU), or any other major university in Idaho, Montana, Wyoming, or Nevada.

- The University of Utah (U of U) has a Master of Human Resources Degree on the books, but that degree program is inactive. The MBA Program at the U of U offers some courses in Human Resource Management, but no specialization in Human Resources. The U of U also offers an evening Master of Public Administration Program that allows students to complete a 15 hour specialization in Human Resources. Courses approved for the HR specialization come primarily from other colleges across campus, and are courses in the behavioral sciences and human resource management.
- BYU offers a Master's Degree Program in Organizational Behavior that differs substantially from the proposed degree.

Collaboration with and Impact on Other USHE Institutions - No impact on other institutions is expected, since they are not currently offering an active Human Resource Degree. Officials at USU have had discussions with Weber State University (WSU) concerning the possibility of collaborating on a degree where USU would provide the human resource course work and WSU would provide course work in health care-related areas. After completing the joint course work, a student would be well qualified to be a human resource professional in the health care industry. These discussions are in the preliminary stage and such a program could be accomplished under either the new MS HR Degree or under the current MSS/HRM Degree.

Benefits: Utah State University and the USHE will benefit from the proposed MS Degree because it strengthens a very popular existing degree. Since this degree is not actively offered in the state or in the region, it gives Utah State University and the USHE an opportunity for distinction in an area where there is high placement demand. The MS Degree will allow students better placement opportunities and will allow a career path into the higher levels of businesses.

Consistency with Institutional Mission - The mission of the College of Business is to advance the practice of business and management and to foster lifelong learning. This program is consistent with this mission and to the department's stated goal of providing human resource professionals for medium- to large-size organizations in the Intermountain West and beyond. Officials at USU believe that the proposed program will enable USU to meet these objectives more completely.

SECTION IV

Program and Student Assessment

Program Assessment - The major goal for the new MS HR Program is to provide Human Resource graduate students with a strategic business orientation. This should enable the graduates, over time, to move into higher level positions in organizations. Other goals include placing graduate students in human resource positions, high employer satisfaction with graduates, improvement in the quality of students entering the program, developing high quality internships, providing students who can “hit the ground running” when they begin their careers, developing closer ties with regional businesses and the professional human resource community and establishing a reputation as the premier Human Resource Program in the Intermountain Region. The measures that will be used to determine whether these goals are met include: pass rates on the HRCI exam, student satisfaction surveys, alumni surveys, focus groups with human resource practitioners, focus groups with alumni, placement data, number of internship opportunities, and longitudinal tracking of graduates to determine career paths and career progress.

Expected Standards of Performance – Students will be expected to achieve the following standards and competencies prior to graduation:

- General business knowledge, including being able to use broad business and financial perspectives to develop inputs for a Human Resource Business Plan and the ability to identify and act upon opportunities for Human Resources in support of the business unit initiatives.
- Human Resource Practices. Human Resource practices include training, compensation, benefits, staffing, performance management, employment law and employee and labor relations. Graduates should be able to demonstrate depth in at least two of these areas and a broad understanding of other areas to produce results.
- Interpersonal and Team Skills. Graduates should be able to lead/facilitate teams and share credit. They should be able to participate in and help other teams. Graduates should also be able to express ideas clearly and concisely with others, market ideas, products and services, explain technical issues in simple terms and maintain confidentiality.
- Problem finding, solving and multitasking. Graduates should be able to anticipate and deal with identified problems. They need to be able to prioritize multiple tasks and determine task hierarchy.
- Graduates will be well versed in assessing human resource practices of various businesses. This may include participation in Shingo site visits, running assessment centers, and performing well in internships.
- Graduates will be able to benchmark, perform cultural assessments, engage in

visioning and be familiar with diversity awareness. Employers will identify graduates as partners in the business organization and graduates' career paths will reflect such partnering.

These standards and competencies were developed based on feedback obtained by the following methods: alumni surveys, graduate student focus groups, human resource professionals focus groups, literature searches on human resource professional competencies, and benchmarking industry standards.

Student Assessment - The formative and summative assessment measures to be used to determine student learning include pass rates of students taking the accelerated business core, pre- and post- testing in appropriate classes, self reflection work, self assessment, skills inventory, personal contact with internship employers, employer satisfaction surveys, employer rehire rates, pass rates on the HRCI exam, alumni network feedback and tracking of graduate career paths. All of these sources will be used to measure the students' initial performance as well as their long term performance, as well as to evaluate the effectiveness of the program and to initiate required changes to enhance student learning. This proposal was initiated based on a review of the information gathered from the above methods.

Continued Quality Improvement - The Department of Management and Human Resources has a long history of continued quality improvement. This proposal is a result of a year-long study concerning the effectiveness of the existing MSS/HRM Degree. Alumni, employers and leading human resource professionals were surveyed concerning trends in the human resource field and shortcomings of the existing program. USU has a permanent MSS Steering Committee that meets regularly to discuss the graduate programs. Further, departmental task forces are frequently appointed to look at specific issues. These ad hoc task forces are responsible for serious reviews of various aspects of programs and are appointed as soon as the need arises. The program and student assessment data described above will first be reviewed by the Steering Committee and, if the need arises, a task force will be assigned. The processes that are currently in place for continual review and strengthening of all programs, including the proposed MS Degree, will remain ongoing.

SECTION V

Finance

Budget - A budget is currently in place for the existing MSS/HRM Program. Because enrollments are not expected to significantly increase with implementation of the proposed MS Degree in Human Resources, additional costs over the first five years of the program should be minimal and would be related primarily to advertising the new program and the possible need to hire adjunct faculty on a temporary basis. Should this need arise, officials at USU anticipate the total additional expense for the five-year period to be approximately \$13,000.

Funding Sources - The proposed degree will be funded through existing state appropriations which currently flow directly to the Department of Management and Human Resources, and through one faculty line currently funded by Continuing Education which supports the distance education program. Limited institutional funds are also available to cover some of the costs for advertising and adjunct faculty, should the need arise.

Impact on Existing Budgets - There should be minimal, if any, impact on existing undergraduate major degrees or the satellite MSS/HRM Program.

Appendix A

Program Curriculum and Course Descriptions

The proposed program requires completion of the accelerated business core and an internship if students do not have an undergraduate degree in Business and appropriate work experience. Although the program has been restructured, no new courses will be added that are not currently available.

Program Courses:

Course Number	Title	Credit Hours
MHR 6160	Accelerated Business Core	18 credits
	Sub-Total	18 credits
Core Courses		
MHR 6510	Performance Management	3 credits
MHR 6550	HR Planning and Staffing	3 credits
MHR 6650	Teams/ Interpersonal Effectiveness	3 credits
SOC 6100	Advanced Methods of Research	3 credits
MHR 6630	Compensation and Benefits	3 credits
MHR 6690	HR Policy and Strategy	3 credits
MHR 6760	Employment Law	3 credits
ECON 6670	Employee and Labor Relations	3 credits
	Sub-Total	24 credits
Elective Courses		
	Elective	3 credits
	Elective	3 credits
	Sub-Total	6 credits
MHR 6250	Graduate Internship	3 credits
	Sub-Total	3 credits
	Total Number of Credits	51 credits

Course Descriptions

MHR 6160. Accelerated Business Core. Integrates financial reporting, analysis, and markets; domestic and global economic and legal environments; creation and distribution

of goods and services; and human behavior in organizations.

MHR 6510. Training and Performance Management. Introduces Human Resource Management, and then undertakes an in-depth analysis of performance management processes, including job analysis, choice of raters, performance feedback, employee motivation and discipline, and training for improvement of individual performance.

MHR 6550. Human Resource Planning and Staffing. Focuses upon creation of competitive advantage through strategic human resources planning and staffing. Topics include job analysis, preparing candidate specifications, recruitment, assessment, and placement. Also covers pertinent laws/regulations and applicable descriptive/inferential statistics.

MHR 6630. Compensation and Benefits. Strategic analysis of compensation and benefits policies and programs. Includes job evaluation systems, job pricing, wage and salary surveys, statistical methods used in compensation, group and individual pay for performance, executive compensation, and employee benefits.

MHR 6650. Team and Interpersonal Effectiveness. Experiential course designed to develop team effectiveness, and specific managerial and leadership skills contributing to interpersonal competence and effectiveness in work groups and organizations.

MHR 6760. Employment Law. Examines laws related to employment, labor relations, civil rights, compensation, safety, health, and retirement. Provides experience in dispute resolution techniques in a nonunion employment setting, including negotiation, mediation, and arbitration.

MHR 6690. Human Resource Policy and Strategy. Capstone course in Human Resource Management, designed to integrate concepts learned in specialized course to the management of a total Human Resource function, with integration from both strategic and tactical perspective. Covers domestic and international issues as well as organizational change and development.

MHR 6250. Graduate Internship.¹ Graduate-level internship in a career-related position for graduate students wishing to develop or expand their occupational experience.

ECON 6670. Employee Relations and the Labor Movement. Comprehensive survey

¹ The Executive in Residence in the MHR department will function as a liaison between employers and students to secure internship opportunities both in Logan and in the Salt Lake City-Ogden metropolitan area. Over the past several years we have placed graduates from both our undergraduate and graduate programs in Human Resource Departments in most of the major organizations throughout the state. We believe we have sufficient contacts available to place all students requiring internships in suitable opportunities.

of union-management relationships, including labor markets and the labor movement, labor history and law, union organization and government, and contract negotiation and administration. Includes exercises and cases in negotiations and grievance processes.

SOC 6100. Advanced Methods of Social Research. Examines philosophical bases, techniques, and political and ethical aspects of social research.

PSY 6010. Introduction to Program Evaluation: Evaluation Models and Practical Guidelines. Alternative approaches and practical guidelines for conducting evaluation studies. Through case studies and simulations, addresses impact of social, political, and ethical issues on evaluation.

BIS 6440. Information and Decision Making. Case-based approach to learning role of information technology when making quantitative and qualitative analyses, including statistical techniques to solve business problems through the use of information technology.

Appendix B

Program Schedule

Summer	MHR 6160	Accelerated Business Core	18 credits
Fall	MHR 6510	Performance Management	3 credits
	MHR 6550	HR Planning and Staffing	3 credits
	MHR 6650	Teams and Interpersonal Skills	3 credits
	SOC 6100	Advanced Methods of Social Research	3 credits
	Elective		3 credits
Spring	MHR 6630	Compensation and Benefits	3 credits
	MHR 6690	HR Policy and Strategy	3 credits
	MHR 6760	Employment Law	3 credits
	ECON 6670	Employee and Labor Relations	3 credits
	Elective		3 credits
Summer	MHR 6250	Graduate Internship	3 credits

Graduation: End of Summer Semester

Appendix C

Faculty

Caryn Beck-Dudley, J.D. *Professor and Department Head.* Business Law, Employment Law, Social Responsibility

Mary Jo Blahna, MSS/HRM *Senior Lecturer/Advisor* Management and Human Resources

Ronda Callister, Ph.D. *Assistant Professor* Management, Organizational Behavior, International Management

Gaylen Chandler, Ph.D. *Associate Professor/Program Director* Human Resources, Management, Entrepreneurship

David Daines J.D. *Associate Professor* Business Law, Employment Law

David Dickinson, Ph.D. *Assistant Professor* Labor Economics

Steven Hanks, Ph.D. *Associate Professor* Business Strategy, Management, Entrepreneurship

Douglas Lyon, Ph.D. *Assistant Professor* Management, Business Strategy

Glenn McEvoy, Ph.D. *Professor* Human resources, Organizational Behavior, management

Gary Oddou, Ph.D. *Professor* Organizational behavior, international business, Management

Ross Robson, Ph.D. *Associate Professor* Management

Alan Warnick. M.A. Organizational Behavior. *Senior Lecturer* Executive in Residence, Management, Human Resources.

David Stephens, Ph.D. *Professor and Dean* Business Strategy, Labor Relations

Assistant/Associate Professor, Business Strategy, Management, Entrepreneurship (currently vacant)

Assistant/Associate Professor, Human Resource Management (currently vacant)

Linda Sue Monson, Staff Assistant

MEMORANDUM

April 11, 2001

TO: State Board of Regents

FROM: Cecelia H. Foxley

SUBJECT: Utah State University Master of Professional Studies in Horticulture: Water Efficient Landscaping—Action Item

Issue

Officials at Utah State University request approval to offer a Master of Professional Studies in Horticulture: Water Efficient Landscaping, starting Spring, 2002.

Background

The Master of Professional Studies in Horticulture: Water Efficient Landscaping Specialization (MPSH:WEL) program is designed to prepare students who have a Horticulture undergraduate degree to be urban landscape water conservation specialists. Graduates would be employed by water districts, cities, and other water agencies that deal with urban water, especially in the arid West. The MPSH:WEL Degree would be a cross-disciplinary program providing a solid understanding of supply and demand for landscape irrigation water upon which students can build the skills needed for developing, marketing, and administering a program in landscape water conservation. The MPSH Degree will require a minimum of 33 semester credit hours. It is considered a terminal degree that will not lead to the Ph.D.

The proposed MPSH:WEL program is a non-thesis program that includes a culminating creative project. It is designed to increase the depth of student knowledge on landscape water use and water conservation techniques that can be meshed with more broad-based knowledge of how to develop, market, and manage a landscape water conservation program. Using water efficiently in the landscape is a multi-faceted issue involving Biology, Design, Engineering, Politics, Law, Natural Resources, History, Psychology, Economics, and Social Science.

Students admitted to this program will be required to have an undergraduate degree in Horticulture, or its equivalent. In addition, specific prerequisite courses in Landscape Horticulture and irrigation will need to be taken prior to entering the degree program to ensure proper background

training in irrigated landscapes. Students will also be required to score a minimum of 1000 in the verbal and quantitative portions of the Graduate Record Exam or a 45 on the Millers Analogy Test.

Policy Issues

This proposal has been approved in USU's institutional review process and by the Board of Trustees. Although no institution opposes the approval of this proposal, UVSC reviewers offered the following suggestions. Although the degree is a non-thesis degree, it does require a culminating creative project. The examples of possible activities range from the fairly simple to what could be interpreted as a research thesis. Perhaps a clearer delimitation of the scope of this requirement would preclude the appearance that some students had an "easy project" while others were required to perform thesis level original research. In addition, USU should work closely with agencies or industry to provide meaningful internships for students. These suggestions are being considered by USU and will be implemented where appropriate.

Options Considered

After Regents have reviewed the proposal from Utah State University for a Master of Professional Studies in Horticulture: Water Efficient Landscaping, they may raise issues, request additional information, deny the request or approve the request.

Commissioner's Recommendation

It is the recommendation of the Commissioner that the Regents approve the request by Utah State University to offer a Master of Professional Studies in Horticulture: Water Efficient Landscaping, beginning Spring Semester, 2002.

Cecelia H. Foxley, Commissioner

CHF/MAP/GSW
Attachment

ACADEMIC AND APPLIED TECHNOLOGY PROGRAM COMMITTEE

Action Item

Request to Offer a
Master of Professional Studies in Horticulture: Water Efficient Landscaping

Utah State University

Prepared for
Cecelia H. Foxley
by
Michael A. Petersen
and
Gary S. Wixom

April 11, 2001

SECTION I The Request

Utah State University officials request approval to offer Masters of Professional Studies: Water Efficient Landscaping specialization, effective spring semester, 2002. This program was approved by the institutional Board of Trustees on January 26, 2001.

SECTION II Program Description

The proposed MPSH:WEL program is a Plan C non-thesis program that includes a culminating creative project. It is designed to increase the depth of student knowledge on landscape water use and water conservation techniques that can be meshed with more broad-based knowledge of how to develop, market, and manage a landscape water conservation program. Using water efficiently in the landscape is a multi-faceted issue involving Biology, Design, Engineering, Politics, Law, Natural Resources, History, Psychology, Economics, and Social Science. Effectively dealing with these problems will require a cross-disciplinary approach.

In addition to formal course work, each student will be required to undertake and complete two developmental activities. The first will be a summer internship with a water purveyor or related entity. The second activity will be a significant culminating creative and scholarly effort in designing a landscape water conservation program for a water supplier.

Purpose of Degree. The Master of Professional Studies in Horticulture: Water Efficient Landscaping Specialization (MPSH:WEL) program is designed to prepare students who have a horticultural undergraduate degree to be urban landscape water conservation specialists for employment by water districts, cities, and other water agencies that deal with urban water, primarily in, but not limited to, the arid West. The MPSH:WEL Degree would be a cross-disciplinary program to provide a solid background understanding of supply and demand for landscape irrigation water upon which students can build the skills needed for developing, marketing, and administering a program in landscape water conservation. The MPSH Degree will require a minimum of 33 semester credit hours, and will be considered a terminal degree that does not lead to the PhD.

Admission Requirements. Students admitted to this program must have an undergraduate degree in horticulture, or its equivalent. In addition, specific prerequisite courses in landscape horticulture and irrigation must be taken prior to entering the degree program to ensure proper background training in irrigated landscapes. Students will also be required to score a minimum of 1000 on the verbal and quantitative portions of the Graduate Record Exam or a 45 on the Millers Analogy Test.

Since this degree program requires specific undergraduate training and targets a specific career market, admission requirements will also include a telephone or in-person interview, if the students are within reasonable travel distance, with a member of the Plants, Soils, and Biometeorology (PSB) faculty. This interview will help to ensure that students are well matched to the program in both experience and expectations. In addition, students will write a short essay describing their reasons seeking admission to the program.

Student Advisement. Students will be advised by the faculty listed in Appendix C.

Justification for Number of Credits. The 33 credit hours required for this program meet Regents guidelines for a masters degree.

External Review and Accreditation. No external consultants were used in the development of this program and there is no external accreditation available for it.

Projected Enrollment. Enrollment of approximately seven students is an appropriate size, considering the targeted nature of this degree program. Future enrollment growth will depend on student interest and the market for employees with this training.

<u>Year</u>	<u>Student FTE</u>	<u>Ratio</u>
2002	3	1.0:1
2003	5	1.6:1
2004	7	2.3:1
2005	7	2.3:1
2006	>7	2.3:1

Faculty. Based on expected enrollments, additional faculty will not be required.

Staff. No additional staff will be required.

Library. The library resources currently available are sufficient for this program. However, it would be advantageous to continue to upgrade the existing collections with both books and periodicals that are currently unavailable, such as the International Journal of Water Resource Development.

Learning Resources. Access to state-of-the-art distance education and Internet technology is essential. Required equipment is currently available in the PSB Department, the Instructional Technology Department, and the Faculty Assistance Center for Teaching. A critical factor in the success of the program will be an ability to remain current with advancing technology.

SECTION III Need

Program Necessity. The arid west is rapidly urbanizing, and the resulting population growth has appropriated all easily available water around expanding cities and towns. Water to supply future population growth can come from either developing new sources, transfers from agriculture, or reducing existing demand. Developing new sources has little popular or political support and is extremely costly. Transfers would require building expensive new delivery structures. Both development and transfers would result in increased water costs. Conserving water by reducing demand offers the most affordable, and probably most popular, option.

Throughout the West approximately 60-70% of all treated potable water is used on amenity landscapes such as home yards, golf courses, and parks. In Salt Lake City and Salt Lake County, approximately 22 billion gallons of water yearly is applied to landscapes. Conservatively, assuming \$0.5/1000 gallons, the cost of this water is over \$10 million. Amenity landscape water use is the major target for reduction in urban water demand because it is perceived as less important than indoor use. However, the existence of the \$800 million/year landscape and related green industries in Utah is entirely dependent on this water. The water agencies which sell, the green industry which manages, and the public which uses this water have limited understanding about how much water is actually needed to properly maintain landscapes. The result is that excess water is often applied to amenity landscapes. Consequently, water-efficient urban water users subsidize the inefficient users when the costs of new water sources and delivery structures are passed uniformly onto all users. Water agencies seeking to conserve water will need the skills of horticulturists with appropriate training to develop effective conservation programs. Increased conservation requirements are leading to new career opportunities in water conservation at the city, state, and federal level.

This program will target three pools of students. The first are traditional undergraduates in horticulture, both in the Plants, Soils, and Biometeorology (PSB) and other horticulture departments around the country, and the second are mid-career individuals interested in a career change to horticulture. Students in these two pools would benefit by training in water efficient landscaping at the master's degree level because it would allow them to enter their careers at a professional level, as compared to the typical entry-level positions for students with a bachelor's degree. A conventional MS Degree in horticulture would not provide the student with sufficient range in skills to lead to a job in landscape water conservation. A potential third pool includes individuals currently working in water conservation without a degree in

horticulture who wish to improve their ability to address horticulture issues associated with water conservation programs.

A professional masters degree program has the advantage to the department of not requiring the outside research funding typically needed to support traditional MS Degree students. Conversations with undergraduate students in horticulture, both traditional and non-traditional, have shown a high degree of interest, particularly compared to traditional research-based (MS) Degree programs in horticulture.

Utah State University Extension was funded by the state in 1999 with \$100,000/year ongoing funds for a Center for Water-Efficient Landscaping. The proposed center would include research and extension programs. The MPSH:WEL program would be the primary departmental academic affiliation with the Center. This Center has been endorsed by the University, the College of Agriculture, USU Extension and the Plants, Soils, and Biometeorology (PSB) Department.

Labor Market Demand. Approximately 5-10 positions in water conservation associated with water districts and cities become available every year. The number of positions will likely increase as Western water resources become increasingly strained through urbanization.

Student Demand. At least four or five interested students have already been identified.

Similar Programs. The University of Nevada at Las Vegas has a Center for Urban Water Conservation. It serves a research role, and has no affiliated graduate or undergraduate degree program. No other similar programs have been found in the country.

Collaboration with and Impact on Other USHE Institutions. No other USHE institutions offer a horticulture program. This degree program should therefore have no impact on other USHE institutions.

Benefits. Utah State University will benefit from the increased graduate enrollment, and the state will benefit from the services graduates will provide in better managing Utah's water resources.

Consistency with Institutional Mission. This program is entirely compatible with the goals and mission of a land grant university, the College of Agriculture, and the Plants, Soils, and Biometeorology Department.

SECTION IV Program and Student Assessment

Program Assessment. The goals of this program are to train students with a horticultural background to be able to develop a water conservation program that focuses on landscape water conservation for a water district or city. The success of the program will be measured by how many students graduating from the program obtain employment.

Expected Standards of Performance. Students graduating from this program will be able to develop a landscape water conservation program that focuses on improving water efficiency in urban landscapes through precision irrigation and low water landscaping. These skills are essential to developing a water conservation program.

Student Assessment – Course grades will indicate the extent to which students have mastered learning objectives of the classes in the program.

Continued Quality Improvement. Students will be interviewed prior to graduation for their assessment of the program, with follow up interviews 1-2 years after graduation. These interview data will be used to improve the program.

SECTION V Finance

Budget. This program will be managed within the existing resources and budget of the College of Agriculture and the Plants, Soils, and Biometeorology Department.

Funding Sources. This program will be supported by reallocated faculty teaching appointments in the College of Agriculture and the Plants, Soils, and Biometeorology Department.

Reallocation. The primary burden on the faculty will be increased advising of graduate students, which is well within the purview of faculty responsibilities and will be supported by existing state funds. The development of the two new lecture courses will be shared with faculty outside the PSB Department (Biological and Irrigation Engineering and Landscape Architecture and Environmental Planning) where possible and should not require addition funding at this point.

Impact on Existing Budgets. None. Currently the Horticulture faculty in the PSB Department is not fulfilling its graduate education potential. This new program would bring graduate student education to a more acceptable level.

APPENDIX A
Program Curriculum

New Courses to be Added in the Next Five Years – The following courses have been approved by the curriculum review committee:

		Credit Hours
PLSC 6100	Techniques in Landscape Water Conservation Provides experience in setting up a weather station for measuring evapotranspiration, including the programming and remote querying of dataloggers; learning advanced techniques for irrigation scheduling include the setup and management of central irrigation controllers and remote paging controllers; examine the principles of landscape water demand analysis through the use of geographical information systems.	3
PLSC 6225	Professional Experience in Water Efficient Landscaping. A professional internship program that provides a graduate level on-the-job experience for candidates of the Masters of Water Efficient Landscaping Degree program. The internship is required for the degree. Academic credit will not be awarded retroactively for past experience, nor for continuation of current work experience (unless there is a change in assignment that will permit learning of new skills). Internships should be obtained at companies, agencies, or cities dealing with issues of public water use for amenity landscape irrigation. Students will produce a written report of experience for grade.	6
PLSC 6230	Horticultural Landscape Water Management Readings This readings course is designed to be both a current topics course and a cornerstone of the MPSH program that will cover readings on aspects of water development in the West, evolution of water policy, and case studies in landscape water conservation. The MPSH program is designed to function on a one year cycle beginning in January and ending in December. All students in the program should register for Seminar I during spring semester.	1
PLSC 6235	Horticultural Landscape Water Management Seminar The seminar class is offered fall semester following the students' summer internship, and is a capstone course. This is a graduate seminar-type course that will help students develop computer and delivery skills in making public presentations. Students will be expected to make two presentations, one to classmates on their summer internship experience, and the other will cover their culminating, scholarly effort that will be open to the public. The course will be further enhanced through several invited seminars presented by active professionals in the field.	2
PLSC/ LAEP 6300	Planting Design for Low Water Use Landscapes Examines the function and structure of arid land ecosystems, with particular emphasis on the	3

Intermountain region in the context of re-creating those systems in landscapes ranging from residential to parks and large open areas based on careful site analysis. Also covers procuring, (including propagation), establishment, and maintenance of plants from appropriate ecosystems based on site analysis.

All Program Courses - The following are courses that will be required for credit toward the degree. Utilization of these courses by the MPSH:WEL program has been reviewed and approved by the respective departments offering them. The courses have been divided into several main categories. These broad categories are intended to accomplish the following purposes:

Component 1: Social Context of Landscape Water. The purpose of these classes would be to provide insight into the philosophy behind public resource management. In particular, students will be exposed to broad water management concepts and the role of law and politics as they affect landscape irrigation and water resource allocation.

Component 2: Enhanced Horticultural Knowledge. These courses in the PSB Department would give students more extensive and thorough knowledge of plant water use, how to analyze water demand, and advanced landscape water conservation techniques. The seminar courses in this component would also serve to integrate knowledge gained in courses outside the department and for students to enhance their public speaking skills.

Component 3: Liaison Skills. To provide students the expertise needed to develop state-of-the-art educational programs using current technology, such as computer presentations or Internet web sites. Also to provide expertise in dealing with the public, particularly in conveying concepts such as landscape best management practices or innovative pricing structures.

Component 1: Social Context of Landscape Water			Credit Hours	
FR	6000	Human Dimensions of Natural Resource Mgt.	3	F
		Focuses on balancing science and social values in ecosystem management and decision-making. Topics include environmental justice, communication and behavior change strategies, landscape perception and attitudes, social of resource-dependent communities, and conflict management.		
RLR	5100	Conflict Management in Natural Resources	2	Sp
		Introduction to conflict management techniques for those involved in natural resource planning.		
FR	5320	Water Law and Policy	3	F
		Introduction to policies, laws, institution, and practices guiding western water allocation,		

emphasizing how to efficiently and equitably allocate increasingly scarce supplies. Explores reserved water rights, water markets, stream adjudication, public trust doctrine.

TOTAL SEMESTER CREDITS FOR COMPONENT 1 8

Component 2. Enhance Horticultural Skills (see Appendix A above for descriptions)

PLSC	6100	Techniques in Landscape Water Conservation	3	Sp
PLSC	6225	Professional Experience in Water Efficient Landscaping	6	Su
PLSC	6230	Horticultural Landscape Water Management Readings	1	Sp
PLSC	6235	Horticultural Landscape Water Management Seminar	2	F
PLSC/ LAEP	6300	Planting Design for Low Water Use Landscapes	2	F

TOTAL SEMESTER CREDITS FOR COMPONENT 2 14

Component 3: Liaison Skills

INST	5230	Instructional Graphic Production	3	F,Sp
Fundamental practices of using the computer to design and produce a wide variety of instructional graphics and animations.				

ASTE	6140	Program Planning and Evaluation	3	F,Sp
Principles and strategies for developing, implementing, and evaluating agricultural technology and educational programs.				

BA	3500	Fundamentals of Marketing	3	F,Sp,Su
Overview of marketing function, emphasizing concepts and terminology. Includes basic marketing activities of production management, pricing, distribution, promotion, marketing research, and consumer behavior.				

ASTE	6700	Research Methodology in Ag Education	3	S
Introduction to the major research techniques used in the field of ag education. Involves research design and methods of data generation.				

TOTAL SEMESTER CREDITS FOR COMPONENT 3 12

GRAND TOTAL PROGRAM CREDITS 34

Appendix B

Program Schedule

Spring	Credit Hours
INST 5230 Instructional Graphic Production	3
RLR 5100 Conflict Management in Natural Resources	2
ASTE 6140 Program Planning and Evaluation	3
ASTE 6700 Research Methodology in Ag Education	3
PLSC 6100 Techniques in Landscape Water Conservation	3
PLSC 6230 Horticultural Landscape Water Management Readings	1
<hr/>	
Total Credit Hours	15
Summer	
PLSC 6225 Professional Experience in Water Efficient Landscaping	6
<hr/>	
Total Credit Hours	6
Fall	
PLSC 6235 Horticultural Landscape Water Management Seminar	2
PLSC 6300 Planting Design for Low Water Use Landscapes	2
FR 5320 Water Law and Policy	3
FR 6000 Human Dimensions of Natural Resource Mgt.	3
BA 3500 Fundamentals of Marketing	3
<hr/>	
Total Credit Hours	13
<hr/>	
Grand Total	34

Appendix C

Faculty- Within the PSB Department, the following faculty would be directly involved as advisors.

Larry A. Rupp, PhD Professor and Extension Specialist for Ornamental Horticulture

Roger Kjelgren, PhD Associate Professor of Urban Horticulture.

Paul Johnson, PhD Assistant Professor of Turfgrass Science.

MEMORANDUM

April 11, 2001

TO: State Board of Regents

FROM: Cecelia H. Foxley

SUBJECT: Utah State University Request to Offer a Master of Dietetics Administration--
Action Item

Issue

Officials at Utah State University (USU) request approval to offer a Master of Dietetics Administration, starting Fall, 2001.

Background

The Master of Dietetics Administration (MDA) Degree is a professional degree designed to provide students with in-depth training in management and leadership specific to food and nutrition program administration. This degree program is designed to provide specialized, professional training for candidates who plan careers in management of food and nutrition programs. The number of students is expected to grow from five students per year during the first five years of the program to ten students per year by the sixth year.

Nationwide, there is a need for professionally trained managers at local, district, state and federal levels in food and nutrition programs. These positions would be in schools, universities, hospital food services, public health programs, clinical management, etc. These management positions require expertise in financial management, human resource management, marketing, entrepreneurship, and employment laws, all specifically applied to food and nutrition programs. Expertise in these areas requires specialized, in-depth training that frequently is not available through traditional BS or research-oriented MS Degrees in Nutrition. Many professionals are interested in advancing in dietetics practice as opposed to research pathways. The skills emphasized in the Master of Dietetics Administration will enhance career options available for graduates.

Major institutional food service organizations are seeking to recruit, retain and advance careers in management of food and nutrition. Among these organizations are ASFSA (American School Food Service Association), NACUFS (National Association of College and University Food Services), ADA (American Dietetic Association) and ASHFSA (American Society for Healthcare Food Service Administrators). These organizations express a need for more

managers with a strong food and nutrition background enhanced by management skills to manage larger and more complex foodservice operations now and in the future.

The Nutrition and Food Science (NFS) Department can accommodate five new Master of Dietetics Administration students per year without reallocating funds or acquiring new resources. Program growth that is expected by the sixth year, however, will require additional funding from differential tuition and/or reallocation of funds from within the Department. Current expenses will come from the Dietetics Programs budget. Travel grants will be sought from the School of Graduate Studies and through funded research projects.

Policy Issues

Although no USHE institution opposed this degree, two suggestions were offered. Utah Valley State College reviewers suggested that it might be counterproductive for students to take the course, NCFS 6780 Advanced Institutional Food Service Systems Management, after completing a two-semester internship, and instead should complete the course before participating in the required internship. This suggestion was evaluated by faculty at USU. They concluded that the content of NCFS 6780 was better suited for students after completion of the internship, so they plan to retain the sequence of courses as originally proposed.

A recommendation from the University of Utah was for USU faculty to work closely with their colleagues at other USHE institutions where related courses and programs are offered. Discussions have since occurred between departmental personnel from USU and the U of U. These contacts proved to be beneficial and will be continued in the future. It was also learned, however, that the two programs have significant differences in their goals and programmatic content.

Options Considered

After the Regents have reviewed the proposal from the Utah State University to offer a Master of Dietetics Administration Degree, they may raise issues, request additional information, deny the proposal, or approve the request.

Commissioner's Recommendation

It is the recommendation of the Commissioner that the Regents approve the request from Utah State University to offer a Master of Dietetics Administration Degree.

Cecelia H. Foxley, Commissioner

ACADEMIC AND APPLIED TECHNOLOGY EDUCATION COMMITTEE

Action Item

Request to Offer a Master of Dietetics Administration

Utah State University

Prepared for
Cecelia H. Foxley
by
Michael A. Petersen
and
Gary S. Wixom

April 11, 2001

SECTION I

The Request

Utah State University officials request approval to offer a Master of Dietetics Administration, effective Fall Semester 2001. The program has been approved by the institutional Board of Trustees.

SECTION II

Program Description

Program Description. The **Master of Dietetics Administration** (MDA) degree is a professional degree that has been designed to provide students with in-depth training in management and leadership specific to food and nutrition program administration.

Purpose of Degree. The MDA is intended to provide specialized, professional training for candidates who plan careers in management of food and nutrition programs.

Planning for this Degree Program started in the summer of 1999 the when the Nutrition and Food Science (NFS) Department received developmental accreditation for two new programs from the Commission on Accreditation for Dietetics Education (CADE). The first was an undergraduate option in Dietetics and the second was a baccalaureate dietetics internship through distance education that focuses on school food service management. The undergraduate option in Dietetics was specifically developed to support the distance education internship.

The department partnered with Davis School Food Services (DSFS) to provide the Distance Internship. DSFS has a brand new, state of the art, cook chill facility. This facility has the capability to provide 50,000 lunches per day. They service approximately 50 elementary schools, 20 middle schools and 10 high schools. The diverse systems in this large operation provide exceptional learning experiences in foodservice management.

To provide the skills undergraduates need to excel in the internship, the department then partnered with Edith Bowen Laboratory School (EBLS) in the fall of 1999 and took over management of the school food service program that had previously been operated by the Logan City School District. EBLS now serves as a major educational site for students in the Dietetics Programs.

The proposed Master of Dietetics Administration degree is a natural extension of this management-focused internship into a professional Master degree option.

Admission requirements. Candidates for the MDA must be Registered Dietitians with at least two years work experience, or have completed the USU Extension Dietetics Internship. Students seeking entry into the program must satisfy minimum admission requirements of the USU Graduate School and the NFS Department. The Advisory Committee, which is responsible for accepting students into the program and assigning them an advisor and two graduate committee members, will

review applications.

Student Advisement. Once students have been accepted into the MDA program they will be assigned an advisor and two graduate committee members. The committee will review the candidate's academic record and professional goals and develop an individualized program curriculum for the student. The committee will also provide input and feedback on the student's thesis project while the advisor will oversee the project.

New Courses. Except for one new class, NFS 6780: Advanced Institutional Foodservice Management, the program relies on existing courses. This course will be developed for delivery through distance education, since it will be highly marketable for advanced certification in food service management programs. The new course will meet the needs of several professional organizations in addition to the specific degree program.

Justification For Number Of Credits. The applicant must be a dietetics intern completing the USU Extension Dietetic Internship (Option I) or must be a registered dietitian with at least two years of progressive work experience (Option II). Option I will require two semesters to complete following the two-semester internship and consists of a total of 41 semester credits. Option II will require a minimum of three semesters and students must be at the USU main campus for at least two semesters. Option II will require the completion of 30 semester credits. (See Appendix A and B).

Students completing Option I have extensive foodservice management focused learning through their internship coursework NFS 6350 and NFS 6351, Foodservice Systems Management Internship I and II (12 credits). Knowledge and practice objectives and levels of performance are significantly beyond entry-level practice expectations. Interns excelling in these courses should be exceptional candidates for the new degree. The interns will also have excellent technology skills and abilities, which will have been demonstrated beginning with their internship application, and continuing throughout their education. Successful completion of the internship qualifies the student to take the national exam to become a Registered Dietitian (RD).

External Review and Accreditation. External consultants from leaders in the American School Foodservice Association have endorsed the development of the Master of Dietetics Administration degree program.

No professional accreditation currently exists for this program.

Projected enrollment. The number of Master of Dietetics Administration students is expected to grow from five per year during the first five years of the program to ten students per year by the sixth year.

Expansion of Existing Program. The proposed Master of Dietetics Administration degree is an extension of the management-focused internship into a professional Masters Degree option.

Faculty. Because this is a non-thesis graduate degree, advisory committee members will primarily be involved in coursework, advising, and evaluation of the student's project. No NFS faculty

member is expected to advise more than three students per year, and initial faculty involvement in the program will probably be less than 1 FTE.

Existing faculty can accommodate enrollment equivalent to five students graduating per year. Program growth to a total of ten graduates per year will require additional funding to NFS for 0.50 FTE faculty. It is anticipated that a differential tuition adjustment will be requested in the future to assist with the funding of the program as it grows, and that internal reallocation of resources will provide further resources.

Staff. Existing staff can accommodate enrollment equivalent to five students graduating per year. Increased staffing will be required if the Program expands to as many as ten graduates per year.

Library. The Utah State University Libraries provide the library resources that are needed for existing NFS graduate programs as well as those for the students within the College of Business and these resources will also meet the needs of the new Master of Dietetics Administration program. To complement the library resources, the Libraries have acquired access to several electronic resources including databases (FSTA, BIOSIS, Medline, & ABI Inform) and electronic journals, which will enhance the research opportunities for the students within the program. Library resources are also adequate for the distance internship.

Learning resources. This is a non-thesis graduate degree so no additional research laboratory space, other physical facilities, or research equipment are required. The teaching equipment and resources that are currently available in Nutrition and Food Sciences Department will be adequate for the first five years of the program.

SECTION III

Need

Program necessity. Nationwide, there is a need for professionally trained managers at local, district, state and federal levels in food and nutrition programs including, but not limited to, school, university, and hospital food services, public health programs, clinical management, etc. These managers must have expertise in financial management, human resource management, marketing, entrepreneurship, and employment laws, all specifically applied to food and nutrition programs. Expertise in these areas requires specialized, in-depth training that frequently is not available through traditional BS or research-oriented MS degrees in nutrition. Many professionals are interested in advancing in dietetics practice as opposed to research. The skills emphasized in the Master of Dietetics Administration will enhance career options for graduates.

Labor Market Demand. The Master of Dietetics Administration will be a marketable, attractive and valuable degree for professionals in management of the food and nutrition industry and will offer significant opportunities for career development and advancement. Major institutional food service organizations express a need for more managers with a strong food and nutrition background enhanced by management skills to manage larger and more complex foodservice operations now and in the future.

Specific organizations include ASFSA (American School Food Service Association), NACUFS (National Association of College and University Food Services), ADA (American Dietetic Association) and ASHFSA (American Society for Healthcare Food Service Administrators). The Bureau of Labor Statistics also projects increased needs for employment growth as well as replacement of retirees in dietetics and especially in management.

Enthusiastic support and endorsement for development of this graduate program was received from the American School Food Service Association (ASFSA) leaders in national meetings held in St. Louis in July 2000. Leaders in academia specifically requested that USU officials develop a distance format course to enhance review for the advanced certification program in ASFSA . School food service is most effective when dietitians, school administrators, food managers, teachers, and allied groups such as the PTA, recognize its value in the child's mental and physical development. This program will help facilitate them working together to make the foodservice not just a "feeding program," but rather a nutrition program for all students as part of their learning experience.

Student Demand. It is anticipated that there will be significant competition for entry into the graduate program. A survey of the 25 individuals who completed the 1999-2000 management internship was conducted to determine if they were interested in pursuing the proposed MDA Degree. 14 responded affirmatively, and several of those individuals continue to contact the Department to find out the status of the proposed program. Based on these student responses and interest, it is anticipated that 2/3 of students accepted into the graduate program will come from the internship and 1/3 of the students will be accepted for entrance from healthcare, business and industry and public health backgrounds.

Similar Programs. Extensive online surveys and professional contacts have identified no similar programs. Locally, the University of Utah offers a Master of Science Degree in Nutrition with a traditional research focus. Other Universities within the region also offer traditional research focused MS Degrees in foods and nutrition. These institutions include the following:

Arizona:

Arizona State University in Tempe
University of Arizona in Tucson

California:

University of California at Berkeley
California State University, Chico
University of California, Davis
Loma Linda University
California State University, Long Beach
California State University, Los Angeles
California State University, Northridge
California State-Polytechnic University, Pomona
San Diego State University
San Jose State University

Colorado:

Colorado State University, Fort Collins

Idaho:

None

Nevada:

University of Nevada, Reno

New Mexico:

New Mexico State University, Las Cruces

Oregon:

Oregon State University, Corvallis

Washington:

Central Washington University, Ellensburg
Washington State University, Pullman
University of Washington, Seattle

Collaboration with and Impact on Other USHE Institutions. This program is unique from any other USHE Institution offerings. In discussions with Wayne Askew, PhD, Director of Nutrition Division at University of Utah, which offers a traditional nutrition research degree, he expressed no concerns regarding the new MDA option. Vance Hillman, RN, PhD, Department Chair of Community Health at Utah Valley State College endorsed the philosophy behind this type of professional degree. It is not anticipated that this program will impact other programs within the state, including the research-focused programs at USU.

Benefits. It is anticipated that the new degree program will have a positive effect. It will increase the number of graduate students in the Department and provide them with specialty training to become leaders in the dietetics profession. It will generate significant SCHs from non-degree seeking students who specifically take the NFS 6780 Advanced Institutional Management course.

Consistency with Institutional Mission. The proposed Master of Dietetics Administration Degree is in complete alignment with the mission, role, and goals of the University, which are to provide liberal and specialized education programs that lead to satisfying professional careers and life enrichment. NFS teaching goals also include the development of knowledge and skills required for advancement in professional fields of endeavor.

SECTION IV

Program and Student Assessment

Program Assessment. A systematic approach will be used in managing and evaluating the program. Students will regularly evaluate each course they take at the end of the semester. Graduates will complete exit questionnaires and interviews with a panel of MDA faculty to assess strengths and limitations of program. Graduates and employers will be surveyed one year after graduation to assess program quality and graduate performance.

Expected Standards of Performance. Extensive knowledge and performance requirements have been delineated for MDA candidates. These requirements have been developed through review of managerial skills required for running complex food and nutrition operations. The performance standards are a combination of the American Dietetic Association guidelines as well as other major foodservice management players.

Student Assessment. A variety of evaluation strategies are used for student assessment including but not limited to:

- Self-assessment at beginning and end of semester (summative)
- End of semester interview with Program Director and Advisor (summative/formative)
- Evaluation of oral presentations by faculty and classmates (formative)
- Verbal, e-mail, written, feedback by faculty (formative)
- Evaluation of research papers/written projects/group projects (summative)
- Written tests/quizzes

Continued quality improvement. Administrators, faculty, students, and employers shall participate in systematic planning, implementation, and evaluation of the program on a regular and continuing basis. Information gained from the evaluation processes will be used to drive curriculum development and change.

SECTION V

Finance

Cost. The NFS Department can accommodate five new Master of Dietetics Administration students per year without reallocation or new funds. Program growth to expected levels by year six, however, will require the new funding from differential tuition and/or reallocation of funds from within the Department.

Current expenses will come from the Dietetics Programs budget. Travel grants will be sought from the School of Graduate Studies and through funded research projects.

Budget

Projected enrollment and budget needs in the first 7 years of the Master of Dietetics Administration Degree.

	Y1	Y2	Y3	Y4	Y5	Y6 ¹	Y7 ¹
Students admitted:	3	5	5	5	5	10	10
New faculty FTE:	0	0	0	0	0	\$50,000	\$50,000
New staff FTE ² :	0	0	0	0	0	\$14,000	\$14,000
Benefits:	0	0	0	0	0	\$24,320	\$24,320
Current Expense:	\$1500	\$1500	\$1600	\$1600	\$1600	\$2000	\$2000
Library:	0	0	0	0	0	0	0
Equipment:	0	0	0	0	0	0	0
Travel: 3	\$1000	\$1000	\$1000	\$1000	\$1000	\$1500	\$1500

¹Program growth in years 6 and later is contingent upon the acquisition of additional funding for new faculty and staff support

²Teaching assistantships and secretarial support.

³Students will apply for travel grants through the School of Graduate Studies or travel will be subsidized through funded research when applicable to thesis project.

Additional expenses are not anticipated for Library or Equipment expenses.

Funding Sources. No new funds will be required for this program during the first 5 years. Additional funding will be needed by the sixth year. Outside funding and a differential tuition will be sought to continue the program beyond five years.

Reallocation. It is anticipated that reallocation of positions will occur through retirements and reassignments in the Department. Growth of the MDA Program should result in a realignment of assignments within the Department.

Impact on Existing Budget. No negative effects are foreseen. Instead, the department anticipates that the new program will have a positive effect on departmental and university resources via the additional SCHs and student FTEs that the program will generate.

Appendix A Courses Currently Offered

Prefix, number, title, description and credit hours of courses currently offered are listed below. The Departments of Accounting, Business Administration, Business Information Systems, Health, Physical Education and Recreation, Instructional Technology, and Management of Human Resources have authorized the use of their courses to support the MDA Degree.

Course Descriptions

Nutrition and Food Science Courses				
NFS	6250	Clinical Nutrition Internship I	4	Supervised clinical nutrition experience including medical, geriatric, long term care and oncology. Prerequisite: Acceptance into USU Extension Dietetic Internship Program.
NFS	6260	Clinical Nutrition Internship II	4	Supervised clinical nutrition experience including nutrition support, renal, pediatrics, Intensive care units, outpatient care and clinical staff experience. Prerequisite: Acceptance into USU Extension Dietetic Internship Program.
NFS	6350	Foodservice Systems Management Internship I	6	Supervised school foodservice internship at Davis School District Nutrition Services Central Facility. Includes purchasing, inventory control, foodservice and food production. Prerequisite: Acceptance into USU Extension Dietetic Internship Program.
NFS	6360	Foodservice Systems Management Internship II	6	Supervised school foodservice internship at Davis School District Nutrition Services Central Facility. Includes administration and foodservice staff supervision experience. Prerequisite: Acceptance into USU Extension Dietetic Internship Program.
NFS	6750	Advanced Dietetics Practicum	1-4	Advanced dietetics practicum in clinical nutrition, community nutrition, foodservice management, or research. Prerequisite: NFS 4660 or RD.
NFS	6780	Advanced Institutional Food Service Management	3	Principles of management applied to institutional food services and advanced professional certification curriculum. MS candidate in Dietetics, or eligible to take national SFNS (School Food and Nutrition Service) exam.
NFS	6900	Special Problems	1-4	Individual problems and research problems for upper-division students in Nutrition and Food Sciences.
NFS	6970	Thesis Research	2-3	For students working on MS research.
NFS	7800	Seminar	1	Reports and discussion on research and current literature.
Overall Management Courses				
BA	6520	Marketing Strategy	3	Advanced case approach to current marketing management problems. Emphasizes concepts, research, techniques, decision making, and marketing strategy development. Prerequisite: BA 3500.
INST	6490	Instructional Technology in Adult	3	Application of theory, principles and practice of instructional technology in providing instruction to

		Education		adult learners.
MHR	6370	Project Management	3	Teaches concepts of project management, while intensively involving students in production & operations related projects. Requires integrative organizational and industry research and a professional report.
MHR	6410	New Venture Creation	3	Focuses on development of new ventures, including entrepreneurial competencies, venture teams, recognizing business opportunities, gathering resources, new venture finance, entry strategies, legal structure, licensing and regulatory requirements, patents, copyrights, and product liability.
Financial Management Courses				
ACC	6010	Financial and Managerial Accounting	3	Introduction to financial and managerial accounting at the graduate level. Prerequisite: Bachelor's degree or admission to graduate school.
BA	3400	Corporate Finance	3	How corporations raise and manage capital. Study of modern financial principles, methods, policies, and institutions. Corporate organization, creation, and reorganization.
BA	6350	Managerial Economics	3	Application of concepts and theories, based on managerial economics, to business problems. Addresses cost theory, pricing, market structure, and forecasting. Prerequisite: BA 3400.
BA	6420	Financial Problems	3	Corporate finance case course, dealing with problems in working capital management, capital budgeting, cost of capital problems, and corporate restructuring. Prerequisite: BA 3400.
BA	6440	Financial Decision Making	3	Presentation of financial modeling techniques impacting firm decisions. Prerequisite: BA 3400.

Human Resource Management Courses				
BIS	6350	Managing Business Training Programs	3	Examines various management topics in the training and development field, including program development, implementation, and evaluation. Discusses the various roles of training program managers.
HEP	6400	Worksite Stress Management	3	Concepts and principles of worksite stress management, with special emphasis on effective stress management coping strategies aiding in building a self-reliant workforce.
MHR	6500	Managing Individuals and Groups	3	Focuses on development of interpersonal and team skills. Includes development of organizational systems supporting effective use of human resources, including performance management, motivation, selection, training, rewards, and career development.
MHR	6510	Performance Management	3	Introduces Human Resource Management, and then undertakes an in-depth analysis of performance management process, including job analysis, cognitive issues, choice of raters, performance feedback, employee motivation and discipline, and training for improvement individual performance.
MHR	6550	Human Resource	3	Focuses upon creation of competitive advantage

		Planning and Staffing		through strategic human resources planning and staffing. Topics include job analysis, preparing candidate specifications, recruitment, assessment, and placement. Also covers pertinent laws/regulations and applicable descriptive/inferential statistics.
MHR	6630	Compensation and Benefits	3	Strategic analysis of compensation and benefits policies and programs. Includes job evaluation systems, job pricing, wage and salary surveys, statistical methods used in compensation, group and individual pay for performance, executive compensation, and employee benefits.
MHR	6760	Employment Law	3	Examines laws related to employment, labor relations, civil rights, compensation, safety, health and retirement. Provides experience in dispute resolution techniques in a non-union employment setting, including negotiation, mediation, and arbitration.

Program Curriculum

Option I

A minimum of 38 credits will be required for this Plan B option.

The completed USU Extension Dietetic Internship will provide 26 credits, (spread over two semesters) as listed below.

Twelve additional NFS credits (one semester) are required following the internship.

Internship

- a. NFS 6050 Comm. Public Health Internship I 3 credits
- b. NFS 6060 Comm. Public Health Internship II 3 credits
- c. NFS 6250 Clinical Nutrition Internship I 4 credits
- d. NFS 6260 Clinical Nutrition Internship II 4 credits
- e. NFS 6350 Foodservice Systems Management Internship I 6 credits
- f. NFS 6360 Foodservice Systems Management Internship II 6 credits

MDA add-on to Internship

- g. Required NFS courses following internship:
 - *NFS 6900 Special Problems 3 credits
 - NFS 7800 Seminar 1 credit
 - NFS 6780 Advanced Institutional Foodservice Management 3 credits
 - NFS 6970 Thesis Research 2 credits
 - **2 Elective courses from suggested list 6 credits
- (These courses will be specified by the Advisory Committee after review of previous coursework, experience and career goals).
- *NFS 6900 Special Problems will be specific to the individual students program of study.
- Foodservice Management Janet Anderson, oversees
 Clinical Management Noreen Schvaneveldt oversees
 Public Health Management Tammy Vitale oversees

Option II

A minimum of 30 credits will be required for this Plan B option. Eighteen (18) credits will be taken from the Nutrition and Food Sciences Department and a minimum of 6 credits each in two of the three related disciplines are required. Those disciplines include overall management, financial management and human resource management.

Nutrition and Food Science courses (18 credits)

NFS 4750 Management of Dietetics	3 credits (Sp)
NFS 5200 Nutritional Epidemiology	3 credits (Sp)
NFS 5210 Public Health Nutrition	2 credits (Sp)
NFS 5510 Food Laws and Regulations	2 credits (Sp)
NFS 6750 Advanced Dietetics Practicum	1-6 credits (F,Sp,Su)
NFS 6780 Advanced Institutional Food Service Management	3 credits (F, Sp)
NFS 6900 Special Problems	1-4 credits (F, Sp, Su)
NFS 6970 Thesis Credits	2-3 credits (F, Sp, Su)
NFS 7800 Seminar	1 credit (F, Sp, Su)

Overall Management courses

BA 6520 Marketing Strategy
 INST 6490 Instructional Technology in Adult Education
 MHR 6370 Project Management
 MHR 6410 New Venture Creation

Financial Management courses

ACC 6010 Financial and Managerial Accounting
 BA 3400 Corporate Finance
 BA 6350 Managerial Economics
 BA 6420 Financial Problems
 BA 6440 Financial Decision Making

Human Resource Management courses

BIS 6350 Managing Business Training Programs
 HEP 6400 Worksite Stress Management
 MHR 6500 Managing Individuals and Groups
 MHR 6510 Performance Management
 MHR 6550 Human Resource Planning and Staffing
 MHR 6630 Compensation and Benefits
 MHR 6760 Employment Law

Appendix B

Suggested Class Schedule

Option I: Students completing USU Extension Dietetic Internship, eligible to take National Registration Exam to become a Registered Dietitian.

Summer:

NFS 6050 Community Nutrition	3 cr
NFS 6250 Clinical Nutrition	4 cr
NFS 6350 Foodservice Mgmt	6 cr

Fall

NFS 6060 Community Nutrition	3 cr
NFS 6260 Clinical Nutrition	4 cr
NFS 6350 Foodservice Mgmt	6 cr

Spring

NFS 6780 Adv. Mngmt Dietetics	3 cr
NFS 6970 Thesis	2 cr
NFS 7800 Graduate Seminar	1 cr
Elective outside of NFS	3 cr

Summer

NFS 6900 Special Problems	3 cr
Elective outside of NFS	3 cr

Total degree credits: 41

Option II: Registered Dietitian with two years experience

Fall

Electives outside of NFS	9 cr
NFS 6780 Adv. Mngmt Dietetics	3 cr

Spring

NFS 5200 Nutritional Epidemiology	3 cr
NFS 5310 Public Health Nutrition	2 cr
NFS 5510 Food Laws & Regulations	2 cr
NFS 6900 Special Problems	2 cr
Elective outside of NFS	3 cr

Summer

NFS 6970 Thesis Credits	2 cr
NFS 7800 Seminar	1 cr
NFS 6900 Special Problems	3 cr

Total degree credits: 30

Appendix C

Faculty

General oversight of the Master of Dietetics Administration program will be provided by a four member Advisory Committee within the NFS Department, and administered by the NFS Dietetics Program Director. This committee will be comprised of NFS faculty involved in the Master of Dietetics Administration program coursework and those who are interested in becoming involved. The Advisory Committee will provide direction on program policy and curricula, and will also be responsible for accepting students into the program.

Many NFS faculty have agreed to mentor students and serve on student advisory committees. The Advisory Committee will use this information to assign an advisor for each incoming student. The advisor will then consult with the student to select two additional graduate committee members, including at least one PhD faculty member with appropriate background for the students research project.

DIRECTOR of PROGRAM:

Noreen Schvaneveldt, MS, RD
 Contribution to Program:
 Director of Dietetics Program

ADVISORY/SELECTION COMMITTEE:

Von T. Mendenhall, PhD, Department Head
 Contribution to Program:
 Culinary Arts, Food Science, Food Service Management and Food Safety

Janet Anderson, MS, RD
 Contribution to Program:
 Food Service Management, Food Safety

Ann Mildenhall, MS, RD
 Contribution to Program:
 Director of Distance Dietetic Internship

Tamara Vitale, MS, RD
 Contribution to Program:
 Community Nutrition Management/Public Health Nutrition Programming, Culinary Arts

Faculty for the program will include the program director, members of the advisory committee and members of the NFS Department who are involved in Master of Dietetics Administration program coursework, research or Extension. These faculty have also agreed to chair and/or serve on up to three student advisory committees per year. These additional individuals include:

Charlotte Brennand, PhD
 Contribution to Program:
 Extension specialist in food safety/Sensory Chemist

Nedra Christensen, PhD, RD
 Contribution to Program:
 Clinical Nutrition Management

Deborah Gustafson, PhD
 Contribution to Program
 Normal Nutrition, Nutrition Studies in Adolescents

Conly Hansen, PhD

Contribution to Program
Environment/Waste Management in Foodservices

Deloy Hendricks, PhD

Contribution to Program:
Normal Nutrition

Georgia Lauritzen, PhD, RD

Contribution to Program:
Community Nutrition/Extension

Ronald Munger, PhD

Contribution to Program:
Nutritional Epidemiology and Public Health

Kristine Saunders, MS

Contribution to Program:
Community Nutrition Management
Expanded Food and Nutrition Education Program (EFNEP)
Food Stamp Nutrition Program

Marie Walsh, PhD

Contribution to Program:
Food Science/Product Development/Branding

MEMORANDUM

April 11, 2001

TO: State Board of Regents

FROM: Cecelia H. Foxley

SUBJECT: Utah Valley State College Bachelor of Science Degree in Nursing - Action Item

Issue

Utah Valley State College (UVSC) officials request approval to offer a Bachelor of Science Degree in Nursing, for registered nurses, beginning Fall, 2001.

Background

UVSC currently offers a Certificate Program in Practical Nursing and an Associate Degree Nursing Program. Officials at UVSC believe that the addition of a Bachelor's Degree in Nursing is the next logical step in providing education and employment opportunities for nurses in UVSC's service area. The proposed program builds upon the Certificate and Associate Degree Nursing Programs, and is designed for registered nurses who hold an Associate Degree in Nursing. This type of program is commonly known as an RN-BSN Program. Graduation from an accredited Associate Degree Nursing Program and licensure as a registered nurse will be required for acceptance into the proposed Bachelor's Degree Program. National League for Nursing Accreditation Commission (NLNAC) accreditation will be sought for the Baccalaureate Program.

The program will prepare students to enter mid-level management positions, practice in community and home health nursing, and/or pursue graduate education in nursing in order to become nurse practitioners, nurse educators or nurse administrators. Graduates of these programs are usually already working as registered nurses, and may receive additional compensation and/or responsibilities in the workplace upon completion of the baccalaureate degree.

The need for registered nurses is expected to increase significantly over the next several years. The *Journal of the American Nursing Association*, in June 2,000, predicted that the number of full-time equivalent registered nurses in the United States would peak around the year 2007 and decline steadily thereafter. One article in this publication predicted a decline of nearly 20 percent below the workforce requirement for registered nurses by the year 2020. This shortage applies not only to practicing nurses, but extends to faculty in colleges of nursing. Other state and national sources, such as the Utah Department of Workforce Services and the U.S. Department of Labor have also documented an increasing future need for registered nurses. A local survey of health care agencies that hire registered nurses, as well as a survey of UVSC alumni, indicate a demand for a Bachelor's Degree in Nursing in UVSC's service area.

The University of Utah, Weber State University and Westminster College offer Baccalaureate Degrees in Nursing for registered nurses in Utah. Brigham Young University (BYU) has also offered such a program in the past. However, officials at BYU recently made the decision to suspend enrollment into their program of registered nurses with associate degrees for at least two years. Thus, there are currently no opportunities for registered nurses prepared at the associate degree level to enroll in a Baccalaureate Nursing Program in UVSC's service area. The proposed program is not expected to impact enrollment at other Utah institutions.

One additional full-time faculty member will be required in the first year of the program. This individual will be responsible for clinical coordination in addition to classroom and clinical instruction. The proposed program will also require additional library and learning resources including videos, CD ROM programs and computer software and some funding for accreditation-related expenses. Negotiations are currently underway with the Intermountain Health Care Foundation for approximately \$100,000 per year for funding for the proposed program. Additional costs will be funded through enrollment growth. No additional state funds are required.

Policy Issues

No concerns were expressed by other USHE institutions. Officials at the University of Utah, Utah State University and Weber State University expressed support for the program.

Options Considered

After the Regents have reviewed the proposal from Utah Valley State College to offer a Bachelor of Science Degree in Nursing, they may raise issues, request additional information, deny the request or approve the request.

Commissioner's Recommendation

It is the recommendation of the Commissioner that the Regents approve the proposal from Utah Valley State College to offer a Bachelor of Science Degree in Nursing, beginning Fall Semester, 2001.

CHF/MAP/LF
Attachment

Cecelia H. Foxley, Commissioner

Academic and Applied Technology Education Committee

Action Item

Request to Offer a Bachelor of Science Degree in Nursing

Utah Valley State College

Prepared for
Cecelia H. Foxley
by
Michael A. Petersen
and
Linda Fife

April 11 , 2001

SECTION I

The Request

Utah Valley State College officials request approval to offer a Bachelor of Science Degree in Nursing effective Fall, 2001. This program was approved by the institutional Board of Trustees on March 7, 2001.

SECTION II

Program Description

Complete Program Description – The proposed program builds upon the Practical Nursing Certificate and Associate Degree Nursing Programs, and will prepare students to enter mid-level management positions, practice in community and home health nursing, and/or pursue graduate education in nursing in order to become nurse practitioners, nurse educators or nurse administrators. This program is designed for registered nurses who hold an Associate Degree in Nursing; this type of program is commonly known as an RN-BSN Program. Graduation from an accredited Associate Degree Program in Nursing and Utah licensure as a registered nurse will be required for admission to the proposed program. Graduates of such programs are usually already working as registered nurses and may receive additional compensation and/or responsibilities in the workplace upon completion of the baccalaureate degree.

The curriculum for the proposed program, including course descriptions, is included in Appendix A. A sample class schedule can be found in Appendix B.

Purpose of Degree – Students at Utah Valley State College can currently receive nursing education at the certificate level in the Practical Nursing Program and the associate degree level in the Registered Nursing Program. Officials at UVSC believe that the next logical step is to add the Baccalaureate Degree in Nursing to these offerings. The proposed degree will provide students with the education and skills necessary to become more skilled in community concepts and to develop leadership and management concepts and skills. These concepts and skills will allow them to advance in their careers; to enter mid level management positions; and to pursue graduate education in nursing in order to become nurse practitioners, nurse educators or nurse administrators.

Admission Requirements – Applicants must apply for admission to Utah Valley State College and to the Department of Nursing for admission to the Baccalaureate Program. Applicants must meet the following requirements:

1. Graduation from an Associate Degree program in nursing with a minimum GPA of 2.0
2. Licensure as a Registered Nurse in Utah
3. Completion of the following courses with a minimum grade of C:
BIOL 2020 Microbiology or equivalent

CHEM 1100 Elementary Chemistry or equivalent
 CHEM 1130 Elementary Chemistry Lab or equivalent
 PSY1100 Human Development Across the Life Span
 ZOOL 2010 Human Anatomy or equivalent
 ZOOL 2020 Human Physiology or equivalent

Admission/ Selection Procedure

Admission to the proposed Baccalaureate Program in Nursing is competitive. Applicants must first complete the Baccalaureate Nursing Program application and will be awarded points for each course listed above, overall GPA, nursing GPA, and residency. Applicants will then be rank ordered according to total points received, and the 20 applicants receiving the highest points will be admitted and notified of their admission status by mail. Applicants who are not accepted the semester for which they applied may reapply for later admission.

Advanced Placement

Students may achieve advanced placement by taking the National League for Nursing Acceleration Challenge Examination II (NLN ACE) or by specific national certifications. Documentation of successful completion of the NLN ACE, appropriate national certifications or completion of all 3000 level nursing courses must be on file in the Department no less than 45 days prior to the semester in which the student will enroll in a 4000 level nursing course. The NLN ACE Exams may be taken once every three months.

Student Advisement – The Department of Nursing currently has an advisor who provides information sessions for potential students. The departmental advisor reviews the curriculum plan with students, helps them determine what prerequisites they must meet to be qualified for admission and assists them with registration for departmental courses after they are admitted to departmental programs. This advisor will also provide these advisement services for the proposed baccalaureate program.

External Review and Accreditation – Margaret Louis, PhD, RN, Professor, University of Nevada at Las Vegas has served as an external consultant throughout the development of this proposal. Her suggestions have been incorporated in the development of the curriculum and resources proposed for this program.

In addition, the Department of Nursing Advisory Committee has reviewed the proposal, and their suggestions have been incorporated in its development. A list of Committee members is included in Appendix C.

The curriculum plan for the Baccalaureate Degree Program in Nursing will be submitted to the State Board of Nursing for their information. Because the students enrolled in the program are already licensed to practice as registered nurses, the State Board of Nursing does not approve or authorize the offering of such programs.

National League for Nursing Accreditation Commission (NLNAC) accreditation will be sought for the Baccalaureate Program for Registered Nurses. The program will not be eligible for initial accreditation until it has graduated at least one class of students. Therefore, accreditation will be sought in approximately Fall 2004. The Associate Degree Program is currently accredited by the NLNAC.

The NLNAC specifies 19 accreditation criteria for baccalaureate degree programs. The Department fully meets eight of those criteria at the present time, and planning is now underway to assure that all criteria will be satisfied so that accreditation can be sought by Fall, 2004. A detailed description of the Criteria that must be addressed prior to the accreditation and the associated costs are provided in Appendix D.

Projected Enrollment – Projected student FTE and student:faculty FTE for the first five years of the program follow:

YEAR	STUDENT FTE ENROLLMENT	STUDENT FTE:FACULTY FTE
2001-02	12	10.91:1
2002-03	24.67	12.52:1
2003-04	24.67	12.52:1
2003-04	24.67	12.52:1
2005-06	24.67	12.52:1

As indicated previously, the accreditation agency does not mandate a student:faculty ratio. However, in clinical practice components of courses, the standard ratio is 8-10:1.

Expansion of Existing Program – Enrollment in the associate degree program is limited to approximately 36-40 students per semester. Applications for each semester average 50. The following information on student enrollment in the Department indicates that enrollments remain constant and that there will be sufficient graduates to maintain enrollment in a baccalaureate program:

SEMESTER	HEAD COUNT*
Fall 2000	216
Spring 2000	211
Fall 1999	211
Spring 1999	199
Fall 1998	198
Spring 1998	170
Fall 1997	172
Spring 1997	144
Fall 1996	147

*Includes students taking prerequisite courses but not accepted into the Associate Degree Program.

Faculty – A full-time contract faculty position is requested in the first year of the program. In addition to classroom and clinical instruction, this faculty member will have the responsibility for clinical coordination. Three hours of released time will be given for this function. One hourly faculty at 10 contact hours per week will be added in the second year of the program. A list of current faculty who will support the proposed program is included in Appendix E.

In consideration of the fact that the majority of students entering this program will continue to work while completing the degree and will want to finish as quickly as possible, nursing courses will be offered during the summer. Salary for faculty to teach these summer courses is included in the budget.

Faculty added to implement the proposed program will be eligible for participation in all faculty development activities on campus. The budget proposal includes an addition \$500 in current expenses and \$500 in travel expenses to support scholarly activity and attendance at professional seminars and conferences.

Staff – No additional staff will be required to support the proposed program.

Library – Books/Monographs: The Utah Valley State College Library currently houses a substantial number of the books needed to support the Baccalaureate Program. Additional reference books and monographs needed to support the Baccalaureate Degree courses will cost \$1,200 per year.

Scientific Journals: The Utah Valley State College Library currently subscribes to 30 journals which would be used in support of the Baccalaureate Degree in Nursing. An additional fifteen journal subscriptions needed to support the baccalaureate level courses will cost \$ 1,800 per year. This need is based on the Brandon-Hill List of journals for nursing libraries.

Utah Valley State College participates in the Utah Academic Library Consortium. Through this agreement, UVSC faculty, staff and students have library privileges at all Utah

institutions of higher learning. This allows them to check out materials from any of the consortium libraries by presenting a current UVSC identification card. Materials not available at UVSC or the nearby Brigham Young University library can be obtained free of charge from other city, state, and national libraries through interlibrary loan.

Learning Resources – The Department will need additional videos, CD ROM programs and computer software for use in proposed courses. Total cost of these learning resources is \$17,300.

A laptop computer and projection unit for use in classroom presentations are included in the first year of the budget. The second and fifth year budgets include the cost of five computers for the nursing learning lab, to be used by students for independent study and computer-based class and clinical activities.

SECTION III

Need

Program Necessity – The service area for Utah Valley State College has one of the fastest-growing populations in the state. No state-funded opportunities exist within this service area for students who are registered nurses to obtain a Baccalaureate Degree in Nursing. In addition, officials at Brigham Young University (BYU) recently decided to suspend the enrollment of associate degree-prepared registered nurses in their Baccalaureate Program in Nursing for at least two years. This decision has eliminated, for an indefinite period, the opportunity for these nurses to obtain a Bachelor's Degree in Nursing in UVSC's service area. Based on survey information, there is a significant interest by both potential students and employers in having such a program offered at UVSC. It is further anticipated that such a demand will increase as the population increases.

Labor Market Demand –

UVSC Market Assessment

The Department of Nursing mailed a survey to 118 agencies in Utah County and surrounding counties that are potential employers for graduates of the program. Thirty-two surveys were returned with a sufficient number of questions answered to be used; six surveys were returned unmarked or with an insufficient number of questions answered to be used. The response rate was 27.12 percent.

These thirty-two facilities employed a mean of 23.53 nurses per facility with a range of zero to 200 nurses employed. The percentage of the registered nurses employed who have Baccalaureate Degrees in Nursing ranged from zero to 100 percent with a mean of 20.28 percent. The number of positions requiring a Baccalaureate in Nursing ranged from 0-100 percent with a mean of 14.38 percent.

Sixteen (50 percent) of the respondents anticipated an increase in the number of baccalaureate-prepared nurses hired in the next five to ten years. The number of new positions anticipated ranged from one to twenty with a mean of 5.85. The number of positions which become available annually because of retirement ranged from 0 to 3 with a mean of 1.5.

Seventeen (53.13 percent) of the respondents said they would increase the number of baccalaureate-prepared nurses they hired if more were available. Six (18.75 percent) indicated it was not difficult to hire baccalaureate prepared nurses, ten (31.25 percent) indicated it is somewhat difficult, ten (31.25 percent) that it is very difficult and six (18.75 percent) did not respond to this question. The average number of openings for baccalaureate-prepared nurses ranged from 0-30 with a mean of 6.88 for those employers who had one or more openings.

Respondents indicated that the average starting salary for nurses with associate degrees was \$14.57 with a range of \$11.50 to \$16.35. The average starting salary for baccalaureate prepared nurses was \$15.15 with a range of \$12.60-\$18.00.

Twenty-four of the respondents thought UVSC should offer an RN-BSN program, two did not and six did not respond to the question.

Mountainland Region

The Utah Department of Workforce Services *Labor Demand by Occupations 1998-2003*, January 1998, does not differentiate between the different levels of education in reporting information for registered nurses. The report indicates average annual job openings as 100, average entry salary of \$14.10 and average salary of \$20.32. No data is provided regarding annual labor supply. The composite job prospect grade is A.

Utah

The same reporting conditions noted in the discussion of the Mountainland Region data apply for the data for the state. The report notes a total of 720 annual average job openings for registered nurses. The salary levels reported do not reflect highest degree earned. The average entry salary was reported to be \$14.49 and the average salary was \$20.43. The composite job prospect Grade is A. The *1996 Occupational Employment Statistics Statewide Wage Survey* reports the mean salary for registered nurses as \$18.70 with a median salary of \$18.44.

National

Nationwide, the need for additional nurses is well documented. A shortage is being experienced in all areas of the country and all nursing specialties. A June 14, 2000 editorial in the *Journal of the American Nursing Association* and an article in that same edition predicted that the number of full-time equivalent registered nurses in the United States would peak around the year 2007 and decline steadily thereafter. The article by Buerhaus and colleagues states "By the year 2020, The RN workforce is forecast to be roughly the same size as it is today, declining nearly 20 percent below projected RN workforce requirements."

The 2000-2001 edition of the *Occupational Outlook Handbook* published by the Bureau of Labor Statistics reports that registered nurses, the largest health care occupation, held about 2.1 million jobs in 1998 and that employment in nursing is expected to grow faster than the average for all occupations through the year 2008. It further stated that nursing is one of the ten occupations projected to have the largest number of new jobs. Job growth rate for registered nurses is predicted to increase by 30 percent while the prediction for all occupations is an average of 14 percent.

The 1996 *Basic Workforce Report*, published by the Division of Nursing, Bureau of Health Profession, Department of Health and Human Services made recommendations for planning and developing the nursing workforce to assure adequate supply and distribution of qualified nursing personnel for the 21st Century. The report noted that baccalaureate education best fulfills the requirements for a nurse in the 21st Century and provides a sound foundation for the variety of nursing positions that will be required in changing health care systems. The report recommended that at least two-thirds of the nursing workforce hold baccalaureate or higher degrees by the year 2010. Reports from the Division of Nursing indicate that 31 percent of nurses in 1996 held the baccalaureate as the highest nursing degree and 32 percent had an associate degree. That report also indicates that about 14 percent of graduates from associate degree programs go on to obtain a baccalaureate degree.

The American Association of Colleges of Nursing (AACN) reported that 35,734 registered nurses who held associate degrees or hospital diplomas were enrolled in baccalaureate degree programs in 531 schools for the 1998-99 academic year. The report stated that graduates of RN-to-Baccalaureate Programs increased by 3.8 percent between August 1997 and July 1998. According to the report “. . . the demand has intensified for a higher number of nurses prepared in baccalaureate programs that emphasize leadership, patient education, case management, and care across a variety of acute care and outpatient settings . . .” (“Nursing School Enrollments Lag Behind Rising Demand for RNs, AACN Survey Shows”, AACN Press Release January 25, 1999.)

Student Demand – Utah Valley State College mailed a survey to 452 alumni who had graduated from the Associate Degree Program between June 1990 and April 1998 to assist in determining if there is a sufficient pool of students for the program. The survey was returned by 122 alumni for a response rate of 27 percent. Of the 122 respondents, 95 percent held an associate degree as their highest degree in nursing, 2.5 percent held a Baccalaureate Degree in Nursing and three percent held a Master’s Degree in Nursing. In addition, three respondents (2.5 percent) held a baccalaureate degree in a field other than nursing and four (3 percent) held a master’s degree in a field other than nursing. Alumni were asked to indicate if they were currently enrolled in baccalaureate education programs; eight indicated that they were currently in a Baccalaureate Program in Nursing, one in a field other than nursing and 113. or 94 percent of the respondents were not enrolled in baccalaureate level programs.

Alumni were asked if they would enroll if a baccalaureate program were offered. Of the 113 respondents to this question, 103 or 91.2 percent indicated they would be interested at some time in the next ten (10) years. It should be noted that 70 (57.38 percent) of the 122 respondents said that they would pursue a Baccalaureate Degree in Nursing in the next five years and 65

(53.28 percent) would in the next ten (10) years if UVSC does not offer a program. This is a strong indicator of the interest of alumni in pursuing a Baccalaureate Degree in Nursing.

One hundred and five alumni responded to a question regarding tuition reimbursement by their employer. Of these 105 alumni, 76 (72.38 percent) indicated that their employer would provide tuition reimbursement for them to enroll in a Baccalaureate Nursing Program; 29 (27.62 percent) would not receive tuition reimbursement.

Alumni were asked if they thought UVSC should offer a Baccalaureate Program in Nursing for registered nurses. 119 (97.54 percent) responded yes, one responded no and two did not respond to the question.

Respondents were given the opportunity for written comment on the need for a Baccalaureate Program for registered nurses at Utah Valley State College. Comments were written by 53 respondents and supported the need for the proposed program. A sample of these comments is included in Appendix F.

In November 2000, students who were completing the Certificate (PN) Program were asked to complete a survey about their educational plans. Data revealed that 50 of the 51 students completing the survey intended to obtain further degrees in nursing. Further, the survey showed that seven planned to have an associate degree as their highest degree, 21 planned to earn a Bachelor's Degree in Nursing as their highest degree, 18 intended to earn a Master's in Nursing as their highest degree, and one planned to obtain a Doctorate in Nursing. Of those planning to continue their education in nursing, 39 planned to attend UVSC.

Similar Programs – The University of Utah, Weber State University and Westminster College offer a Baccalaureate Degree in Nursing for registered nurses in Utah. Universities and Colleges in surrounding states also offer Baccalaureate Degrees in Nursing.

BYU has also offered a Baccalaureate Degree for registered nurses. However, in December, 2000 officials at BYU announced that they will “. . . suspend, for the next two years, acceptance of students who are registered nurses with associate degrees.” This decision, as discussed in a December 5, 2000 letter from the Dean of BYU's Nursing Program, was based upon recognition of the growing nursing shortage and the fact that BYU has a high number of applicants to their baccalaureate program who are not currently registered nurses able to work in the profession

There will be no significant differences between the degree offered at UVSC and those offered elsewhere. Much of this similarity in approach is dictated by the subject matter and the need for standards of practice in the profession. There are certain core concepts and skills that must be learned at the baccalaureate level. Much of the content of a Baccalaureate Degree in Nursing is composed of these core ideas and practice skills necessary for clinical practice and as the foundation for entering graduate programs in nursing.

Collaboration with and Impact on Other USHE Institutions – Plans to offer a Bachelor of Science Degree in Nursing for registered nurses have been discussed at the quarterly meetings of the Utah Deans and Directors of Nursing Programs over the past year. In addition, the Director of the Department of Nursing at Weber State University and a faculty member for the University of Utah serve on the UVSC Department of Nursing Advisory Committee and have reviewed the proposal, as has the Interim Dean of the University of Utah School of Nursing .

Implementation of the proposed program is not expected to impact enrollment in other such programs in the state. It has the potential to increase the number of students in graduate level nursing programs.

Benefits – UVSC will benefit because registered nurses who began their education at UVSC will be able to complete the baccalaureate degree at that institution. Local health care agencies will benefit as the supply of baccalaureate prepared nurses increases. The Utah System of Higher Education (USHE) will benefit as community members see that the education system is providing educational programs desired by community members and needed by local employers.

Consistency with Institutional Mission – The development and incorporation of a Baccalaureate Degree in Nursing is consistent with the mission of Utah Valley State College which reads, in part, “Utah Valley State College is dedicated to providing a broad range of quality academic, vocational, technical, cultural, and social opportunities and experiences designed to encourage and assist students in attaining their goals and realizing their talents and potential, personally and professionally. The college is committed to meeting student and community needs for occupational training. . . .”

Providing educational opportunities for health professions is also an integral part of meeting the School’s mission. The mission of the School of Science and Health supports the development of the Baccalaureate Degree in Nursing for registered nurses. It states: “The School of Science and Health is committed to providing courses and programs to meet community needs for professional education, general and transfer education, skill development, personal enhancement and career enhancement.”

Addition of this program is also an important aspect of the mission of the Department of Nursing which states that “Education should allow for upward and/or horizontal mobility according to individual needs and desires. Faculty support educational mobility within nursing and recognize common areas of educational achievement.” The Department of Nursing currently offers two levels of nursing education, the Practical Nursing Program and the Associate Degree Program. Addition of the proposed program will provide the next step in educational mobility for nurses and an important step in meeting the need of our local health care facilities for more baccalaureate-prepared nurses.

SECTION IV

Program and Student Assessment

Program Assessment – The Department of Nursing has established program outcomes or goals for all levels of education offered in the Department. The program outcomes state that the Department of Nursing will have:

1. Graduation rates of 90 percent or greater.
2. A rate of 50 percent of graduates who obtain a score above 50 on the critical thinking component of the Collegiate Assessment of Academic Proficiency.
3. A rate of 90 percent of graduates who achieve a score of 60 percent or higher on the communication components of the clinical evaluation tool.
4. A rate of 90 percent of graduates who achieve a score of 60 percent or higher on the therapeutic nursing components of the clinical evaluation tool.
5. A rate of 70 percent of graduates who attain employment in nursing or enrollment in the next level of nursing education within one year of graduation.
6. A rate of 70 percent of graduates who express program satisfaction on alumni surveys.
7. First and second level graduates who have a passing rate equal to or greater than Utah state passing average for first time National Council for Licensure Exam (NCLEX) writers.

An evaluation program is in place to assure collection of data on these items for the first (practical nursing) and second (associate degree nursing) levels of education. This same program of assessment will be conducted with graduates of the third (baccalaureate degree) level, with the exception of licensure. Graduates of the proposed baccalaureate program will not be required to take a licensure exam as they will be licensed as registered nurses prior to admission to the program.

Expected Standards of Performance – Graduates of the Baccalaureate Degree Program in Nursing at UVSC should be prepared to use critical thinking and decision making, appropriate communication techniques and therapeutic nursing interventions in providing care to individuals health care recipients, families, groups and communities. Use of critical thinking and decision making is measured through a standardized test administered at the beginning and end of the program. Communication techniques and therapeutic nursing interventions are assessed in clinical practice using the clinical evaluation form.

These competencies were chosen in order to differentiate between the associate and baccalaureate prepared nurse. They reflect the outcomes required for accreditation by the

National League for Nursing Accreditation Commission and nursing competencies identified by the Pew Health Commission. Graduates of the practical nursing program work primarily with individual patients. At the second, or associate degree level, graduates work with the individual patient and families. The baccalaureate graduate is expected to work with communities and community health and to have an increased role in leadership in the health care system.

Student Assessment – Students will be evaluated by a variety of measures during each course. In the didactic portion of courses evaluation measures will include: unit exams, verbal and written reports, and analysis of policies and procedures. In the clinical component of courses, students will be evaluated by faculty and agency preceptors. Evaluations will consider:

- application of the nursing process in managing and evaluating care of individuals, families, groups and community;
- utilization of therapeutic communication skills and processes,
- collaboration with individuals, families, groups, and health care members to provide holistic care,
- development of strategies for health promotion, health maintenance and prevention of illness,
- application of legal, ethical and professional practice standards, and
- utilization of management and leadership skills in clinical practice.

Final evaluation for didactic components of courses will be based on final reports, unit exams and final exams. Clinical components of these courses will use a clinical evaluation tool similar in format to those of the current programs.

Continued Quality Improvement – The Department of Nursing has a standing Evaluation Committee. The purpose of this committee is to develop, review and assure implementation of the total program evaluation plan including curriculum, students, courses, nursing service agencies and alumni. The functions of the committee are to maintain a calendar of evaluation activities and direct implementation of various activities; review and recommend to Nursing Faculty Organization revisions of total evaluation plan; develop evaluation tools and processes for various evaluation activities; oversee collection and use of evaluation data; and maintain data base of graduates. At the present time, the committee consists of a minimum of four faculty members; one from each semester of the Practical Nursing program and one from each semester of the Associate Degree program. Once the Baccalaureate Program is implemented, the functions of the committee will expand to include evaluation of that program.

The Evaluation Committee compiles data which is then shared with course faculty and with relevant standing committees of the Department such as curriculum, admission and progression committees. These groups review data to determine if changes are necessary. When the data indicate that a change is required, either the course faculty or a committee makes a recommendation to the full faculty. Each standing committee submits a report to the full faculty annually indicating review of evaluation data and recommendations based on that data.

In addition, self-studies done for USHE program reviews and NLNAC accreditation provide information required for development, maintenance and revision of the program.

SECTION V

Finance

Budget – The proposed budget for the first five years follows:

	Year 1	Year 2	Year 3	Year 4	Year 5
Salaries and Wages	\$51,700	\$73,934	\$76,891	\$79,967	\$83,166
Benefits	\$19,054	\$24,521	\$25,502	\$26,522	\$27,582
Current Expense	\$6,000	\$15,100	\$11,500	\$6,000	\$6,000
Library	\$3,000	\$3,000	\$3,000	\$3,000	\$3,000
Equipment	\$15,200	6,000	\$0	\$0	\$6,000
Travel	\$1,000	\$1,000	\$2,000	\$1,000	\$1,000
TOTAL	\$95,954	\$123,555	\$117,893	\$116,489	\$126,748

Funding Sources – Negotiations are underway with the Intermountain Health Care Foundation for approximately \$100,000 per year for funding for the proposed program. Additional costs of the program will be funded through enrollment growth.

Impact on Existing Budgets – No impact on existing budgets is anticipated.

Appendix A

Program Curriculum and Course Descriptions

New courses to be added in the next five years.

Core Courses

NURS 3000	Concepts of Nursing V	4
NURS 3010	Concepts of Nursing VI	2
NURS 3020	Concepts of Nursing VII	2
NURS 3030	Concepts of Nursing VIII	4
NURS 4000	Nursing Theory	3
NURS 4010	Nursing Research	3
NURS 4020	Concepts of Nursing IX	6
NURS 4030	Concepts of Nursing X	7
NURS 4040	Senior Seminar	3
NURS 4050	Senior Project	3
	Subtotal	37

All program courses.

General Education

ENGL 1010 Introduction to Writing

3:3:0

Prerequisite: COMPASS Writing/DRP scores of 80+/77+, or ACT English/ACT Reading scores of 19+/19+, or completion of ENGL 0990 and RDG 1170 each with a grade of C- or higher, or challenge by essay assessment for a \$20 fee.

Emphasizes, in writing intensive workshops, rhetorical knowledge and skills. Teaches critical reading, writing, and thinking skills. Explores writing situations as complex and recursive processes. Enhances basic literacies, addressing both rhetorical problems and conventions of language use (within the context of Standard Written English). Three major essays with graded revision(s), microthemes, in-class writing and collaboration, portfolios, and journals.

ENGL 2020 Intermediate Writing: Science and Technology

3:3:0

Prerequisite: ENGL 1010

Explores public issues involving science and technology. Invokes problems for exploration. Emphasizes the production of well-reasoned and carefully researched written arguments that inquire, interrogate, and negotiate meanings across a diverse array of positions and in a variety of contexts, including writing about science and technology issues, and technical and/or professional documents. Includes at least one major research project (possible more), annotated bibliography and/or appendices, oral presentations (individual and/or group), portfolios, in-class writing, and collaboration. May include basic requirements for professional and technical documents (memos, letters, reports, and more).

MATH 1050 College Algebra 4:4:0

Prerequisites: One of the following: MATH 1010 with a grade of C- or better; an ACT mathematics score of at least 24 (assuming test has been taken in the last 2 years); recommended placement by the COMPASS test; or instructor approval.

Includes inequalities, functions and their graphs, polynomial and rational functions, exponential and logarithmic functions, conic sections, systems of linear and nonlinear equations, matrices and determinants, arithmetic and geometric sequences, mathematical induction, the Binomial Theorem, permutations and combinations, and an introduction to probability.

HIST 1700 American Civilization 3:3:0

Stresses movements and developing institutions that are important for an appreciation of American History from the Pre-Colombian period to the present. Discussions include analysis of developing political, economic and social institutions and their interrelationships with and impact upon the geographical features of the land. Includes book reports, oral response, research papers, media presentations and applications to current events.

PE-S 1300 Fitness for Life 1:5:1.5

Required for AA/AS degree. Provides an individualized approach to physical fitness. Teaches principles of cardiovascular endurance, weight control, strength, and ability. Students apply learning by writing and engaging in a personalized fitness program.

PHIL 2050 Ethics and Values 3:3:0

Prerequisite: ENGL 1010

A demanding transfer course, designed to challenge students to (1) explore and clarify their values; (2) critically read works of philosophy, literature, religion, and history toward understanding the basis of their ethical views; and (3) read, study, research, discuss, and write about difficult ethical issues. Focuses on issues of good vs. evil, justice vs. injustice, equality vs. inequality, and the necessity of defining and examining happiness of values. This confrontation with major philosophical concepts and systems is intended to engage students in serious reflection on issues of ethics and values as they relate to the students' own lives.

ZOOL 2010 Human Anatomy 4:3:3

Prerequisite: 1. BIOL 1010 (or BIOL 2110), ENGL 1010 (or ENGL 1020) or 2. The following scores on the assessment exams: Reading DRP 85 or above, English Writing skills 80 or above, Pre-algebra 70 or above, Algebra 31 or above, or 3. Written permission of the anatomy program coordinator. At least one semester of college level experience is highly recommended.

Studies, in-depth, the anatomy of the human body. Covers the structure and some function at the cellular, tissue, organ, and system levels. Emphasizes the names, locations, and functions of body components. Involves problem-solving and analytical thinking. Includes lectures, labs, and audiovisual presentations.

ZOOL 2020 Human Physiology **4:3:3**

Prerequisite: 1. BIOL 1010 (or BIOL 2110), ENGL 1010 (or ENGL 1020) or 2. The following scores on the assessment exams: Reading DRP 85 or above, English Writing skills 80 or above, Pre-algebra 70 or above, Algebra 31 or above, or 3. Written permission of the anatomy program coordinator. At least one semester of college level experience is highly recommended.

Studies the function of the human body at the chemical, cellular, organ, and system levels. Explains control mechanisms involved in homeostasis and stimulus/response pathways. Involves problem-solving and analytical thinking.

CHEM 1110 Elementary Chemistry **3:3:0**

Prerequisite: MATH 1010 or equivalent.

An introductory course in the fundamentals of chemistry. Designed for students in nursing and other allied health fields who will not undertake advanced courses in chemistry, and a preparatory course for students who intend to take CHEM 1210, but think their background is weak or their high school preparation is inadequate. Studies chemical measurement, atomic structure, chemical bonding, chemical reactions, solutions, and acid-base systems. Students who need or desire laboratory work should enroll in CHEM 1130 also.

PSY 1100 Human Development **3:3:0**

An integrated approach to human development from conception to birth to old age and death. Causes students to examine their own growth and developmental patterns and learn to understand the characteristics of various developmental stages. Studies the major physical, cognitive and psychosocial themes and issues of human development. Includes genetics, prenatal development, birth, early/middle/late childhood, adolescence, early/middle/late adulthood, and death.

Humanities **3**

Fine Arts **3**

Subtotal **33**

Core Courses**BIOL 2020 Microbiology** **4:3:2**

Prerequisite: None, but BIOL 1010 (or BIOL 2110), ENGL 1010 or ENGL 1020 or an assessment DRP score of 77 or above are recommended.

Designed for those planning majors in Biology. Studies histories and contributions of early scientists. Explores bacterial and viral diseases and their causes. Discusses physiology, genetics, physical and chemical control, and classification. Uses laboratory experience to understand microorganisms and control.

CHEM 1130 Elementary Chemistry Laboratory 1:0:2*Corequisite: CHEM 1110.*

Introduction to inorganic laboratory experiments including density, precipitation, determination of empirical formulas, gas laws and acid-base reactions.

NURS 1010 Concepts of Nursing I 7:4:9

Introduces nursing students to concepts and processes fundamental to the practice of nursing. Develops basic psychomotor skills needed to complete independent and collaborative nursing care measures including activities of daily living; basic patient assessments; basic diagnostic procedures; medication administration; completion and documentation of assigned patient care. Introduces normal and abnormal patient signs and symptoms. Includes readings, discussions, demonstrations, CAI/multimedia resources, and case studies during which each student will participate in both a lecture and laboratory setting.

NURS 1020 Nursing Issues 2:1:3

Introduces the practice of nursing and the nursing curriculum including program mission, philosophy, and curricular framework. Includes nursing history and roles, communication skills, nursing process, and holistic care. Review medication calculation and dosages and medical terminology. Provides opportunities to practice and apply concepts through group discussion, role play, class presentations, and a variety of media programs.

NURS 1110 Concepts of Nursing II 9:5:12

Builds upon Nursing Concepts I. Focuses on an expanded recognition and comprehension of concepts and processes fundamental to the practice of nursing. Develops skills to identify patient care needs and assist in planning appropriate interventions in a variety of settings. Emphasizes related patient symptoms and medical diagnosis; comprehension and verbalization of nursing care interventions; utilization and nursing considerations of drug classifications. Includes readings, discussions, demonstrations, multimedia use and case studies during which each student will participate in both lecture and laboratory settings.

NURS 1120 Nursing Seminar 0.5:0:2

Prepares students for entry into practice at the level of the Licensed Practical Nurse. Presents employment opportunities, scope of practice, and issue relevant to the discipline of nursing.

NURS 2010 Concepts of Nursing III 8:4:12

Focuses on the concepts and processes needed to identify the health needs/or problems of patients. Identifies discriminating factors used to determine and complete appropriate independent and collaborative nursing interventions. Emphasizes pharmacokinetics and nursing implications for medication use; identification of nursing diagnoses and problems; elaborations of pathophysiologic mechanisms. Includes readings, discussions, demonstrations, multimedia resources, and case studies during which each student will participate in both a lecture and laboratory setting.

NURS 2020 Nursing Transition Seminar 0.5:0:2

Introduces the role of the associate degree nurse within the nursing discipline. Identifies scope of practice, management skills, and roles of the registered nurse as a member of the interdisciplinary health care team. Includes nursing program mission, philosophy and curricular framework.

NURS 2110 Concepts of Nursing IV 7:3:12

Integrates planning and management of holistic patient care. Identifies, implements, and evaluates interventions designed to address patients needs in a variety of settings. Examines cultural diversity and ethnicity when planning appropriate nursing care. Incorporates promotion, maintenance and restoration of health. Includes supervision, delegation, and evaluation of the nursing care team.

NURS 3000 Concepts of Nursing V 4:4:0

Prerequisites: RN Status

Builds on a basic knowledge of psychosocial nursing. Incorporates the nursing process in the management of health care recipients with mental illness. Prepares the student to develop, manage and evaluate nursing care for those with a mental illness. Requires students to demonstrate clinical skills in hypothetical care situations.

NURS 3010 Concepts of Nursing VI 2:2:0

RN Status

Presents the complex issues related to the childbearing experience. Presents normals and complications related to pregnancy, delivery, and postpartum care for the childbearing family. Presents adverse outcomes for infants will also be presented. Requires students to demonstrate clinical skills in hypothetical care situations.

NURS 3020 Concepts of Nursing VII 2:2:0

Prerequisites: RN Status

Covers nursing concepts as they apply to the pediatric patient from infancy through adolescence. Teaches the nursing student to apply facts and principles consistent with the nursing process in providing care to patients within the pediatric population.

NURS 3030 Concepts of Nursing VIII 4:4:0

RN Status

Covers nursing concepts related to the care of the adult patient. Applying facts and principles, including case presentations based on pathophysiology, treatment modalities, drugs, nutrition and nursing interventions. Requires students to demonstrate clinical skills in hypothetical care situations.

NURS 4000 Nursing Theory 3:3:0

RN Status

Examines various models of nursing practice which influence nursing today. Evaluates multi-level nursing practice on current health care trends. Exposes the student to ideas and values which affect those trends. Incorporates the development of an individual philosophy of nursing practice.

NURS 4010 Fundamentals of Nursing Research 3:3:0*Prerequisite: MATH 2230 Corequisite: NURS 4000*

Introduces research concepts, designs, methodology, and techniques. Examines the scientific approach, preliminary steps in research, designs for nursing research, measurement and data collection, analysis of research data and critiquing and utilizing nursing research.

NURS 4020 Concepts of Nursing IX 6:4:2*Prerequisites: NURS 4010*

Integrates professional nursing practice with community health practice to promote and preserve the health of populations. Incorporates the nursing process in the care of individuals, families and groups in the community. Emphasizes the nursing role in health promotion and disease prevention. Reinforces communication, legal-ethical and professional considerations implicit in prevention. Includes family and community assessments, epidemiological principles and implementation of illness prevention and health maintenance programs within a community

NURS 4030 Concepts of Nursing X 6:4:2*Prerequisites: NURS 4010 NURS 4020*

Explores various management and leadership theories. Utilizes conflict resolution, communication skills, change process within health care profession. Includes different roles the nurse performs in the health care environment: case manager, nurse educator and quality improvement initiator and how these roles can enhance the nursing care given to the customer and their families.

NURS 4040 Senior Seminar 3:3:0*NURS 4030*

Builds upon a general knowledge of current trends in nursing. Examines current nursing issues and their impact on professional practice. Provides opportunities for enhancement of research, writing and evaluation skills.

NURS 4050 SENIOR PROJECT 3:1:2*Corequisites: NURS 4040*

Requires students to complete a well-defined project in an area of special interest that incorporates learning achieved during their nursing education.. Includes limited formal instruction and faculty supervision. Requires faculty approval of proposed study or project. Requires students to complete projects a clinical practice area; faculty and student will mutually define criteria for grading the senior project.

MATH 2230 Statistics 4:4:0*Prerequisite: MATH 1050 with a grade of C- or better.*

A beginning statistics course. Includes summarizing data, measures of central location, measures of variation, probability, mathematical expectation, and discrete and continuous probability distributions. Includes sampling and sampling distributions, estimations, hypothesis testing, analysis of variance, regression analysis, and correlation.

ZOOL 4400 Pathophysiology**4:4:0***Prerequisite: ZOOL 2010, 2020 and BIOL 2020.*

For Biology majors with an emphasis in human physiology, pre-professional majors, and nursing students. Studies pathophysiological etiology and mechanisms that cause disease and altered physiological control and function of organs and organ systems. Emphasizes the gross histopathological and physiological alterations that occur in various disease states.

BMC 3440 Managing Organizations**3:3:0***Prerequisite: BMC 1400.*

Studies management theory and emphasizes the managerial view of the elements and variable that influence the organization. Examines the management tools use din planning, organizing, directing, controlling, leading, and coordinating the factors within organizations. Emphasizes leadership and team building. Uses current events as they relate to managing and developing the organization. Includes case analysis, team building exercises, video, class discussion, group presentations, written assignments, and guest speakers.

Subtotal**86****Total Number of Credits****124**

Appendix B

Program Schedule

(The first two years are the existing Practical Nursing and Associate Degree Nursing Programs.)
 1st year prerequisites: Biology 2020 Microbiology (4 credits), Zoology 2010 Human Anatomy (4 credits) and Zoology 2020 Human Physiology (4 credits) **TOTAL 12**

First Semester

NURS 1010 Concepts of Nursing I	7.0
NURS 1020 Nursing Issues	2.0
PSY 1100 Human Development	3.0
TOTAL	12.0

Second Semester

Nurs 1110 Concepts of Nursing II	9
NURS 1120 Seminar	0.5
ENGL 101 Intro. To Writing	3
TOTAL	12.5

2nd year prerequisites: Math 1050 Competency (ACT 26+), Chemistry 1110 Elementary Chemistry (3 Credits), Chemistry 1130 Elementary Chemistry Lab (1 Credit), PE-S 1300 Fitness for life (1 credit), Humanities (3 credits) **TOTAL 8**

Third Semester

NURS 2010 Concepts of Nursing III	8.0
NURS 2020 Transition Seminar	0.5
ENGL 2010 Inter Writing	3.0
HIST 1700 Amer Civilization	3.0
TOTAL	14.5

Fourth Semester

NURS 2110 Concepts of Nursing IV	7.0
PHIL 2050 Ethics & Values	3.0
FINE ARTS	3.0
TOTAL	13.0

The remainder of the curriculum is the baccalaureate portion.

Fall

NURS 3000 Nursing Concepts V	4
NURS 3010 Nursing Concepts VI	2
NURS 3020 Nursing Concepts VII	2
NURS 3030 Nursing Concepts VIII	4
MATH1050 College Algebra	4
TOTAL	16

Spring

NURS 4000 Nursing Theory	3
MATH 2230 Principles of Statistics	4
ZOOL 4400 Pathophysiology	4
TOTAL	11

Summer

NURS 4010 Nursing Research	3
TOTAL	3

Fall

NURS 4020 Nursing Concepts IX	6
BMC 3440 Managing Organizations	3
TOTAL	9

Spring

NURS 4030 Nursing Concepts X	7
TOTAL	7

Summer

NURS 4040 Senior Seminar	3
NURS 4050 Senior Project	3
TOTAL	7

TOTAL PROGRAM CREDITS 124

Appendix C

Nursing Advisory Committee Members

Debra T. Huber, PhD, RN
Chair, Department of Nursing
Weber State University

Helen Zsohar, PhD, RN
Associate Professor
College of Nursing, University of Utah

Dallas Earnshaw, MS, RN
Asst. Clinical Director
Utah State Hospital

Vicki McClellan, RN, MS
COO Patient Services
Utah Valley Regional Medical Center

Sandy Ewell, RN, BS
Chief Clinical Officer
Timpanogos Regional Hospital

Lynn Flinders, RN, MS
Division Director-Family & Personal Health Services.
Health Department of Utah County

Lane Pedersen
Director, Human Resources
IHC Home Care Services

Cindy Walpole, RN
Charge Nurse
Utah Valley Regional Medical Center 4th floor

Carrie Frampton, RN
Mountain View Hospital

Wendy Parmley, RN
IHC Home Care Services

Appendix D

Criteria for Accreditation that are not Currently Satisfied

The NLNAC specifies 19 accreditation criteria for baccalaureate degree programs. The Department fully meets eight of those criteria at the present time, and planning is now underway to assure that all criteria will be satisfied so that accreditation can be sought by Fall, 2004. A detailed description of the Criteria that must be addressed prior to the accreditation and the associated costs

Criterion 5: “Faculty members (full and part-time) are academically and experientially qualified and maintain expertise appropriate to teaching service and scholarly responsibilities.”

The guidelines specify that nursing faculty hold, at a minimum, a Master’s Degree in Nursing and/or the earned doctorate as appropriate. They further specify that the academic and experiential preparation and diversity of faculty backgrounds must be appropriate to primary teaching responsibilities.

The number of students admitted and the number of faculty positions required to meet these criteria in the proposal are considered in the request to implement this new program. The cost is shown in the budget for faculty positions. The Director of the Department and one other faculty member hold doctoral degrees. Advertising for future openings in the Department of Nursing will specify that a Doctorate in Nursing or a related field is preferred and a Master’s in Nursing is the minimal requirement for employment in the Department.

Criterion 6: “Number and utilization of full- and part-time faculty meet the needs of the nursing unit to fulfill its purposes.”

This proposal has been developed to allow a faculty:student ratio of 1:10 in clinical components of nursing courses. This will allow the faculty to provide sufficient supervision and mentoring to assist students in developing new skills and approaches appropriate to the baccalaureate-prepared nurse. The budget reflects the number of faculty FTEs required to meet this standard for the baccalaureate program. Accreditors may also review the ratios for the practical and associate degree levels as they are the first two years of the full program. The faculty:student ratios in those levels range from 1:10 to 1:13. The Department may receive a recommendation to lower the ratio in clinical sections which have a ratio higher than 1:10. If so, an additional 28 hours a week of hourly funding (\$20,496 salary plus \$2,255 benefits) would be required. This is not reflected in the budget.

Criterion 7: “Faculty performance is periodically evaluated to assure ongoing professional development and competence.” This criterion is met in the established faculty evaluation processes of the college and department. Current policies of the College and Department provide funding for faculty scholarly activity and attendance at professional conferences and

workshops to assist in the maintenance of expertise. An additional \$1,000 is requested to provide faculty development funds for new faculty for this program.

Criterion 15: “Fiscal resources are available to support the nursing unit purposes commensurate with resources of the governing organization.”

This criterion addresses support for faculty development, research, instruction, clinical practice, and community and public service. It also considers faculty and nursing administrator salaries. The proposed budget takes these factors into consideration. An additional \$1,000 is requested for faculty development activities.

Criterion 16: “Physical facilities are appropriate to support the purposes of the nursing unit.”

Careful scheduling of courses and clinical practice time will allow this criterion to be met with no further expenditure required. It is anticipated that many classes will be held in the evening or on Saturdays to meet the needs of the working student

Office space for faculty members must also be available and conducive to counseling students. The faculty offices must allow for privacy to counsel students. The Department does not have office space for additional faculty nor is there space for another faculty office in the nursing department. Remodeling costs may be required to provide an office.

Criterion 17: “Learning resources are comprehensive, current, developed with nursing faculty input, and accessible to faculty and students.”

Resources considered in this accreditation criterion include library, computer center, and departmental audiovisual materials as well as study skills resources. Needs for library holdings, both books and journals, are addressed under the heading “Library”. Needs for other learning resources are addressed under the heading “Learning Resources”. Cost for audiovisual materials and computer assisted instruction materials, \$17,314 is included in the budget under current expenses. Funding to upgrade computers in the nursing computer lab in the amount of \$7,000 is included in the second and fifth years of the budget.

Criteria 18 and 19 address program evaluation and assessment of educational outcomes.

Systematic evaluation of all components of the nursing program must be implemented. Funds must be available to carry out the evaluation plan. Funds will be needed for critical thinking tests at the beginning and end of the program, and printing and mailing of alumni and employer surveys conducted annually for program graduates. These costs have been included in the budget under current expenses.

The budget includes membership fees of \$560 per year for the National League for Nursing (NLN) and \$2,320 for the American Association of Colleges of Nursing (AACN). An initial

accreditation fee of \$1,000 will be required as will a site visitor fee of approximately \$4480. The department will also incur costs for preparation of the accreditation self-study and accreditation. These costs are also included in the budget as current expenses.

Appendix E

Faculty

Lori Barber, MN Nursing, University of Phoenix

Utah Valley State College 1996-present

Current Rank: Assistant Professor

Previous Positions:

Nursing Director • Utah County Health Department

Clinical Director • Utah County Health Department

School Nurse • Utah County Health Department

Medical/Surgical Floor Nurse • Mt. View Hospital

Area of Specialization: Public Health

Lona Broadhead, MS Nursing Brigham Young University

Utah Valley State College 1997-present

Current Rank: Assistant Professor

Previous Positions:

Staff Nurse • Intermountain Critical Care Nursing in CCU/ICU (1988-present)

Assistant Director of Nursing/Director of Education • Intermountain

Critical Care Nursing (Summers 1999-2000)

Critical Care Education Coordinator/Clinical Specialist in ICU/CCU • Salt Lake
Regional Medical Center (1996-1997)

Critical Care Education Coordinator • LDS Hospital, Cottonwood Hospital
and AltaView Hospital (1990-1995)

BS/MS Instructor • University of Phoenix (1985-present)

Advanced Med/Surg Instructor • Brigham Young University (1982-86)

Critical Care Nurse / Flight Nurse (1975-1990)

Assistant Head Nurse in Shock Trauma ICU (1978-1980)

Charge/Staff RN in Urology, Eyes, Ears, Nose & Throat (1973-1975)

Area of Specialization: Adult medical-surgical nursing, critical care nursing

Denza Bruss, MS Nursing, University of Utah

Utah Valley State College 1997-present

Current Rank: Assistant Professor

Previous Positions:

Staff Development Manager • FHP Hospital (1993-97)

Manager • Western Rehabilitation (1991-93)

Manager PACU • West Paces Ferry Hospital (1990-91)

Administrative Director • American Nursing Resources (1988-90)

Program Coordinator • IHC, Weber State College (1980-87)

Instructor • Weber State College (1975-80)

ICU Staff Nurse • Primary Children's Medical Center (1972-80)

Pediatric Staff Nurse • McKay-Dee Hospital (1971-72)

Area of Specialization: Pediatrics, newborn, critical care nursing, nursing administration/education

Gaya Carlton, MS Nursing University of Utah

Utah Valley State College 1989-present

Current Rank: Associate Professor

Previous Positions:

Product Manager of Nursing Applications • CTE Health Systems, Inc.
1986-1989)

Newborn/NICU Nurseries Department Manager • Utah Valley Regional
Medical Center (1984-1986)

Pediatric Department Manager • American Fork Hospital (1981-1984)
Staff Nurse • American Fork Hospital (1977-1981)

Area of Specialization: Newborn/NICU nurseries, pediatrics, obstetrics, OR,
nursing administration, nursing education

Marianne Craven MN, University of Phoenix

Utah Valley State College 1995-present

Current Rank: Assistant Professor

Previous Positions:

Team Leader IHC Blood Services (1991-96)

Staff Nurse Olsten Kimberly Quality Care (1991-94)

Assistant Director of Nursing Zion's Care Center (1986-87)

Staff Education Zion's Care Center (1986-87)

Staff Nurse Holy Cross Hospital (1983-86)

Staff Nurse Medical Personnel Pool (1979-84)

Assistant Director of Nursing Highland Manor Nursing Home (1977-79)

Area of Specialization: Bloodbanking, orthopedics, medical-surgical nursing

Suzette Farmer, MS Nursing, University of Utah

Utah Valley State College 1995-97, 1998-present

Current Rank: Assistant Professor

Previous Positions:

Telephone Triage • IHC Telehealth Services (1997)

Home Health • IHC Home Health Care Services (1981-82; 1994-1995)

Nursing Faculty • Weber State University (1991-1995)

Director of Nursing Services • Utah State Hospital (1994)

Infection Control Consultant • Utah State Hospital (1998-99)

Quality Assurance/Utilization Review • Utah State Hospital (1989-91)

Staff Nurse - Geriatric Unit • Utah State Hospital (1987-1989)

Psychosocial Staff Nurse

- University of Utah (1985-1986)

- Western Institute (1986)

- Utah Valley Regional Medical Center (1979-81)

Medical/Surgical Staff Nurse

- Holy Cross Hospital (1986-1987)
- LDS Hospital (1986)
- Sanpete Valley Hospital (1984)
- Utah Valley Regional Medical Center (1978-79)
- Central Utah Convalescent Center (1978)

Area of Specialization: Psychosocial nursing, infectious diseases

Alene Harrison, EdD Psychoeducational Processes from Temple University

MS in Nursing from University of Michigan

Associate Dean, School of Science and Health Utah Valley State College 1995-present
and

Director, Department of Nursing 2000-

Current Rank: Professor

Previous Positions:

Associate Professor and Chairperson (tenured) • Idaho State University
Department of Nursing (1989-1995)

Assistant Professor Department of Nursing • Idaho State University
(1987-1989)

Assistant Professor Department of Nursing • Wilkes College (1981-1987)

Assistant Chairperson (1985-1987)

Assistant Professor Department of Nursing • College Misericordia (1977-
1981)

Instructor • Department of Nursing • Skidmore College (1972-1977)

Instructor • Lennox Hill Hospital School of Nursing (1970-1972)

Clinical Nurse Specialist • Gracie Square Hospital (1969-1970)

Psychiatric Staff Nurse • Roosevelt Hospital (full-time 1966-1967 and
part-time 1967-1981)

Area of Specialization: Psychiatric -mental health nursing, nursing education, education
administration.

Marie Hunter, MN Nursing Management/Education, University of Phoenix

Utah Valley State College 1999-present

Current Rank: Instructor

Previous Positions:

Med/Surg Staff Nurse

Organ Transplant

Urology

ICU

Home Health

School Health

Pediatric Exam Clinic

Public Health

Area of Specialization: School health nursing, public health nursing, home health nursing

Gary Measom, PhD Exercise Physiology from University of New Mexico

MS in Nursing Brigham Young University

APRN

Utah Valley State College 2000

Current Rank: Assistant Professor

Previous Positions:

Assistant Professor • Brigham Young University (1980-1984, 1991-2000)

Clinical Nurse Specialist Emergency Room • Lowrie Medical Center
(1987-1991)

Instructor • University of New Mexico (1984-1985)

Head Nurse Intensive Care Unit/Emergency Room • Mt. View Hospital
(1980-1984)

Staff Nurse (1986-1991)

- Mt. View Hospital
- Lovelace Medical Center

Area of Specialization: ACLS instructor, health promotion, acute care nursing, CCRN

Julie Musselman MS Nursing, University of Utah

Utah Valley State College 1977 to present

Current Rank: Professor

Previous Positions:

Labor/Delivery Staff Nurse • Utah Valley Regional Medical Center

Office Nurse • Timpanagos OB/GYN Clinic

Diabetes Outpatient Clinic Nurse • Veterans Administration Medical Center

Area of Specialization: Adult physiology

Mickie Opfar, MS Nursing University of Utah

Utah Valley State College 2000

Current Rank: Instructor

Previous Positions:

Nurse Internship • OSHA, Washington DC (1999)

Occupational Health Nurse • Delta Airlines (1999-2000)

Occupational Health Consultant • SWC Consultants - Health Works, Inc.
(1998-2000)

Contract Nurse • Olsten Health Services (1999-2000)

Occupational Health Nurse • Kennecott Copper Mine (1998-1999)

Emergency Room Nurse • Timpanagos Regional Medical Center (1997-
1998)

Continuing Care Unit • Mountain View Hospital (1997)

Clinical Trainer, Quality Assurance, Staff Development, LPN, RN,

Telemetry Unit for Cardiology Services • Utah Valley Regional Medical
Center (1986-1995)

Area of Specialization: Telemetry, Emergency Room, MIS, rehabilitation, infection control, adult nurse practitioner, ACLS, TNCC, CPR instructor (American Red Cross), Instructor trainer (American Heart Association), Certified Occupational Health Nurse Specialist, Hearing Conservation Certification, Pulmonary Function Certification

Ella Peterson, MSN Brigham Young University

Utah Valley State College 1999-present

Current Rank: Assistant Professor

Previous Positions:

Nursing Faculty • College of Eastern Utah (1993-1999)

Utah County Public Health (1989-1993)

State Public Health Cancer Screening • Utah State Hospital

Medical Clinical

Operating Room

Area of Specialization: Community health nursing, infant development, oncology, lifespan health care

Lou Ann Provost MSN Brigham Young University

Utah Valley State College 1993-present

Current Rank: Associate Professor

Previous Positions:

Nursing Supervisor • Utah County Jail

School Nurse • Utah County

Public Health Staff Nurse • Mt. View Home Health

Area of Specialization: School nurse, home health manager, medical-surgical staff nurse

Lorriel Thorn MN University of Phoenix

Utah Valley State College 1971-present

Current Rank: Professor

Previous Positions:

Pre-admission Coordinator, Discharge Planner & Utilization Review Nurse •

American Fork Hospital

Medical-Surgical Staff Nurse • American Fork Hospital Women's Center

Surgical Nurse • American Fork Hospital

Pediatric Nurse • Salt Lake County General Hospital

OB/Nursery Nurse • Pioneer Valley Hospital

Industrial Nurse • Hercules

Area of Specialization: medical-surgical nursing, administration

Appendix F

Comments from Alumni Survey

Respondents who had already completed or enrolled in a baccalaureate program elsewhere commented:

- It's unfortunate I had to drive to SLC for 1 ½ years to complete my BSN. If the program you want to start, started tomorrow, it would be about time.
- I am currently enrolled in a BSN program, however, I would attend the BSN program at UVSC over BYU, U of U or Weber State. Tuition is decent, there is a good learning atmosphere and convenience makes the program a must.
- I loved being a student at UVSC and it makes me happy to see its growth. I had to transfer to BYU to get my BSN degree. I think you would be supported if you were able to create this program. Nursing needs more BSN prepared nurses. I am happy to see you pursuing this endeavor.
- I would have been very interested if UVSC had a program in 1995. I moved to Ogden from Provo to attend WSU's BSN program.
- Upon asking about this 2 ½ years ago, I was told there was no need for this program. So 13 of us students car pooled together for the WSU program. I am now finishing up my elective credits for BSN completion. 4 of my 9 co-workers just started the U of P this year. One other co-worker is looking for some place to complete his BSN degree.

Several comments focused on the growth of the community:

- The valley is growing quickly. The time is now to offer the program.
- It is a growing community. Need a program in this area besides BYU.
- The population base in Utah County is increasing rapidly. BYU no longer caters to the local population and an alternative is desperately needed. Many intelligent, motivated people do not have the time or resources to leave county or state to continue their education.

Some comments focused on the expense of programs at other nearby institutions:

- There is always a need to advance and a lot of nurses are not able to afford to go to S.C. (U of U) or U of Phoenix or BYU.
- It would be nice to have an affordable State College in Utah County offer a BSN program during hours convenient for working moms. A BSN opens opportunities for advancement in the nursing career.
- I would really like to get my BSN but at this time I am not able to afford University tuition
- I feel the expense of school at U of U or BYU is very high. It is much more affordable to attend UVSC plus the class sizes are more conducive to learning. I have enjoyed my education experiences at UVSC.

A group of comments related to reputation and enjoyment of the UVSC programs:

- UVSC is known to have one of the best programs to prepare students for the workplace. This would be just one more asset to the program.
- I enjoyed my educational experience at UVSC in the past and would look forward to the possibility of continuing my education there.
- Please, Please --- get an RN-BSN program. I have loved attending UVSC and would really prefer to finish my education there.

Two respondents pointed to the need for continued professional growth in their comments:

- The nursing industry is rapidly changing and progressing. The increased need to provide advanced skill and knowledge is becoming ever apparent. A Bachelor's program would be very advantageous, and I feel, will become very necessary.
- I am currently working as an RN but I can foresee the time when I will want/need to have a BSN in order to advance in my field. The only other BSN programs nearby are at BYU (very hard to get into) and a private one (U of P) which is very expensive. Utah county needs another option for it's new and upcoming Associate Degree graduates.

MEMORANDUM

April 11, 2001

TO: State Board of Regents

FROM: Cecelia H. Foxley

SUBJECT: Salt Lake Community College Biotechnology Technician Associate of Applied Science Degree - Action Item

Issue

Salt Lake Community College (SLCC) requests approval to offer a Biotechnology Technician Associate of Applied Science Degree, effective Fall, 2001.

Background

SLCC has offered biotechnology technician course work through the Division of Continuing Education since Fall Semester, 2000. Enrollment in these courses demonstrates student interest in this training area. Based upon student feedback and support from business, industry and the public education system, officials at SLCC now propose to offer a Biotechnology Technician Associate of Applied Science Degree.

The proposed program will provide students with skills that will meet the industry's needs. Graduates of the program should be highly competitive for technical positions in biotechnology research, including medical device research. The proposed program will also meet a current and predicted future need by the local biotechnology industry for a trained workforce, and will enhance state economic development by promoting and supporting biotechnology, a lucrative and fast-growing technology field.

Data from state and national sources indicate future growth in the demand for trained workers in the Biotechnology field. The proposed program has been designed to include articulation opportunities with high schools as well as other institutions in the Utah System of Higher Education, providing a continuum of educational possibilities for students.

Facilities for the program will be provided through a collaborative arrangement between SLCC and the Jordan School District . The Jordan School District has broken ground at the Salt Lake Community College Jordan Campus for a 45,000 square foot technical training building, of which 4,800 square feet will be devoted to biotechnology training. The District will own this facility and conduct its training in the morning. The facility and its equipment will be available, on a lease basis, to the College beginning at 3:00 p.m. daily to train biotechnology technicians.

Two additional full-time faculty members will need to be hired to implement the program – a lead coordinator/instructor in year one and an additional instructor in year two. Officials at SLCC have received preliminary notification from the National Science Foundation (NSF) of approval of a grant that will cover one-half of the cost of one faculty FTE in the program. It is expected that equipment costs for the program

will be significantly reduced through a cooperative arrangement with the Wasatch Front South Consortium. Additional costs include wages and benefits for adjunct faculty, supplies and materials, the acquisition of library and learning resources and the lease arrangement on the Jordan District facility. Enrollment growth funding is expected to be adequate to cover all costs not absorbed through the NSF grant and collaborative agreements. No additional state funds are requested.

Policy Issues

Officials at Utah Valley State College (UVSC) raised a question regarding the need for the program, given that Weber State University currently offers a Biotechnician Program that they believed may already meet the workforce needs in Utah. Officials at SLCC point out that the program currently offered at Weber State University and the proposed Salt Lake Community College Biotechnology Program are significantly different. WSU's program is built primarily upon standard biology and chemistry curricula, combines an A.S. Degree and an institutional certificate, and requires three years to complete. The proposed Salt Lake Community College program results in a two-year Associate of Applied Science Degree that prepares students to immediately enter the workforce. The proposed program incorporates 11 biotechnology-specific courses that focus on laboratory competencies and skills defined by local biotechnology industries, as well as internships and classes taught by industry representatives. Officials at WSU agree that there are significant differences in the two programs.

No concerns regarding the proposed program were expressed by other USHE institutions.

Options Considered

After the Regents have reviewed the proposal from Salt Lake Community College to offer a Biotechnology Technician Associate of Applied Science Degree, they may raise issues, request additional information, deny the request or approve the request.

Commissioner's Recommendation

It is the recommendation of the Commissioner that the Regents approve the proposal from Salt Lake Community College to offer a Biotechnology Technician Associate of Applied Science Degree, beginning Fall Semester, 2001.

Cecelia H. Foxley, Commissioner

CHF/MAP/LF
Attachment

Academic and Applied Technology Education Committee

Action Item

Request to Offer a Biotechnology Technician Associate of Applied Science Degree

Salt Lake Community College

Prepared for
Cecelia H. Foxley
by
Michael A. Petersen
and
Linda Fife

April 11 , 2001

SECTION I

The Request

Salt Lake Community College officials request approval to offer a Biotechnology Technician Associate of Applied Science Degree, effective Fall, 2001. This program was approved by the institutional Board of Trustees on March 14, 2001.

SECTION II

Program Description

Complete Program Description – The proposed Biotechnology Technician provides students with the skills required for technical positions in biotechnology research, including medical device research. The program emphasizes partnerships with local industries to provide students with knowledge and techniques at the forefront of the field.

The emphasis is on "hands-on" training with over 100 hours spent in the laboratory, beginning in the second semester of the program. Skills taught include DNA cloning and analysis, expression and purification of proteins, cell culture techniques, enzyme and antibody assays, bioprocessing, bioinformatics, industrial standards and communication skills. Students will do internships at local biotechnology companies, providing a unique opportunity to apply knowledge in an industry environment.

Courses are taught by faculty with extensive experience in laboratory research. Further, industry instructors will teach courses to provide students with the most current knowledge in a field that is known to be dynamic. The program is designed to assure that students will be competitive for employment upon graduation.

Career opportunities are growing within the industry. A biotechnology technician may be employed in a variety of areas including medicine, agriculture, forensics and medical device development.

The curriculum for the proposed program, including course descriptions, is included in Appendix A. A sample class schedule can be found in Appendix B.

Purpose of Degree - The proposed degree responds to current and expected future needs of the local biotechnology industry for a trained workforce. Currently there are no community college training programs in Utah for biotechnology technicians that are designed to provide students with a functional set of skills that will meet the industry's needs. The proposed degree will also help enhance state economic development by promoting and supporting biotechnology, a lucrative and fast-growing technology field. Finally, the proposed degree will meet increasing student interest in high-tech areas of employment.

The expected outcome is a highly trained workforce that will be very competitive with currently available graduates who are not specifically trained in biotechnology techniques. As a consequence, the increasing needs of industry for a trained workforce will be met. The presence of a trained workforce will draw the attention of potential start-up biotechnology companies, and possibly companies from out-of-state. This, in turn, will boost economic development in the technology sector of Utah. The proposed degree will create a new career path for students in the Utah System of Higher Education (USHE) and potentially increase enrollment in other related, existing courses. Finally, the proposed degree will promote education in science technology at the post-secondary level.

Admission Requirements - There are no special admission requirements for this program. Admission is consistent with general Salt Lake Community College admission procedures and guidelines.

Student Advisement - Students will have the opportunity to consult with an academic advisor who specializes in advising students for this program. Throughout their time in the program, students will also be encouraged to meet with Biotechnology faculty for further advising needs.

External Review and Accreditation - A list of consultants who were involved in the development of the proposed program is included in Appendix C.

There is also a Program Advisory Committee in place for the proposed program. The Program Advisory Committee will meet twice a year to evaluate the success of the proposed program. They will evaluate the efficacy of the competencies defined for the proposed program and the effectiveness of internships, recommend appropriate changes based upon the conclusions of their assessment, and help to identify other advocates for the program.

A list of individuals who will form the Program Advisory Committee for the program is also included in Appendix C.

Currently there is no accreditation requirement for Biotechnology Programs.

Projected Enrollment - Enrollment is projected at 20-25 students per semester, based upon current enrollment of 14 students (without recruitment) in the pilot biotechnology course (BTEC 1010). Projected student FTEs and faculty:student FTEs for the first five years of the program follow:

Year	Student FTE	Mean Faculty FTE:Student FTE
2001-2002	13.6	1:14
2002-2003	48.2	1:20
2003-2004	63.1	1:25
2004-2005	63.1	1:25
2005-2006	63.1	1:25

Faculty – One full time lead faculty member will be required in the first year of the program. An additional full-time faculty member will be hired in year two. No additional faculty will be required through 2006. Dr. Tamara L. Goetz, current faculty member, will serve as the Program Director. Dr. Goetz's qualifications follow:

Research Associate, Huntsman Cancer Institute, 1995-2001
Adjunct Faculty, Salt Lake Community College, 1996-2001
Genetics Science Learning Center, Faculty, 1997-1999
Ph.D. Biochemistry and Biophysics, Washington State University, 1995
M.S. Physiology and Animal Sciences, University of Missouri, 1991
B.S. Physiology and Animal Sciences, University of Missouri, 1988

To keep current with the profession, Salt Lake Community College's full-time faculty will attend two nationally recognized training programs/conferences. These are Bio-Link and BIO. Adjunct faculty will be recruited from local industry and will be current in their research fields.

Staff - No additional administrative or secretarial/clerical help will be required. The Division of Continuing Education will administer this program. The Administrative Assistant to the Division Chair and staff in the Faculty Support Services Office will assist in support operations.

Library and Learning Resources - The Salt Lake Community College Markosian Library currently carries two of the nine periodicals (Science and Nature) deemed necessary for the Biotechnology Program. The remaining seven (Biotechniques, Molecular and Cellular Biology, Cell, Current Opinion in Biotechnology, Nature Biotechnology, Nature Genetics, and Current Protocols in Molecular Biology) are in the process of being ordered. The Library has a reasonable collection of books and videos relating to Biotechnology. Eight additional recommended book titles and two videos on Biotechnology and Bioethics are being ordered to make the collection more complete.

Access is available to many electronic databases (some of which contain full-text articles.) A list of these databases is on file in the Commissioner's Office.

CD-ROM's that provide animation, web-based teaching curricula that would supplement hands-on laboratory exercises, and a number of software programs will be required for the bioinformatics and protein computer-modeling curriculum, and three-dimensional models for macromolecules such as DNA and protein are required for demonstrations.

SECTION III

Need

Program Necessity - Biotechnology has a tremendous impact in areas that influence our quality of life, both currently and in the future. In medicine, gene therapy has provided a way to potentially correct deadly genetic diseases. Bioremediation, using biotechnologically-engineered microbes, can help us to clean up hazardous waste sites. DNA profiling in forensics and criminal

investigations improves fairness in our judicial system. Plants that are drought-resistant due to genetic engineering can help to support the agricultural industry. These are merely a few examples of the importance of biotechnology in our society.

The Utah biotechnology industry employs 25,000 individuals with 116 firms in the state. The trade association for life science companies, the Utah Life Science Association (ULSA), predicts an eighty percent growth in entry-level technical positions within the next five years. Twenty-four percent of Utah's biotechnology companies expect serious shortages of skilled technicians in the next four years. The same growth trend is observed in the academic research community with the establishment and expansion of the research facilities such as the Huntsman Cancer Institute.

The Biotechnology Program will support growth in the Biotechnology industry, which is consistent with Utah's emphasis on technology. The program is designed as a partnership with the Jordan School District and has been developed with input and support from the public school system. In addition, the proposed program will provide a highly trained workforce that will be an incentive for the development of new companies. It will also help to maintain the well being of existing biotechnology companies in the state.

Labor Market Demand -

State of Utah Analysis

John Matthews, Labor Market Economist with the Utah Department of Workforce Services, recently surveyed the need for biotechnicians. His findings are as follows:

SOC Code	Occupation	Employment		Average Annual Job Openings*
		2000	2005	
19-402	Biotechnician	540	600	30

*Due to growth and replacement

Two Utah Studies – Biotechnology Professionals

The total number of workers in Utah's biotechnology companies will increase at least 25 percent in the next three years, according to an August 1999 market survey by Dr. Jill Hadfield. Her study fully supports *the need for ...and viability of...* a Biotechnology Technician Program in this area. Dr. Hadfield's conclusions confirmed an October 1998 study conducted by Utah State University's Biotechnology Center, the Utah Life Science Association, and Dr. Kelvin Willoughby of Willoughby International Inc. This survey predicted an 80 percent growth in entry-level technical positions in Utah in the next five years. Twenty-four percent of Utah biotechnology firms expect a serious shortage of technicians due to this growth. The Willoughby report concluded that "Utah needs to increase its generation of personnel with skills relevant to bioscience technology . . . if something is not done it is highly likely that the 'lion's share' of employment-benefits of this highly dynamic industry will accrue to people from outside the state rather than to existing residents of Utah." To date, no Utah Higher

Education System school offers a Biotechnology program designed to train technicians at the competency level demanded by the industry.

Newspaper Reports

It is not uncommon to find newspaper articles indicating significant growth in biotechnology firms nationally. The January 14, 2001 *San Francisco Chronicle* contained an article entitled “Biotech Doesn’t Always Require Advanced Degree.” The article’s author, Crayton Harrison, indicated that biotechnology companies nationally now often look for employees with life science degrees from both universities and community colleges.

Visits and Letters of Support

The need for a trained biotechnology workforce is reflected by the enthusiasm of local industry to support the development of the proposed Biotechnology Program. Initial visits to local companies by Salt Lake Community College biotechnology representatives was met with a significant desire to help with curriculum development, classroom instruction, internship positions, and advisory support. Specifically, two companies stated an immediate need for Salt Lake Community College Biotechnology graduates and disappointment that they were not yet available.

Owners and supervisors of life science and biotechnology firms have supplied letters of support indicating a need for this training. These letters are on file in the Commissioner’s Office. Excerpts from the letters can be found in Appendix E.

Experience in Other States

Graduates from Biotechnology Programs in other states have found entry-level technician positions in a variety of Biotechnology companies. Examples include Genentech (San Diego City College and San Francisco City College graduates), Promega (Madison Area Technical College graduates) and Stratagene (Austin Community College graduates). Graduates from other Biotechnology programs have found jobs in academic research laboratories at state universities. Many have been placed in agriculture-based companies such as Monsanto (St. Louis Community College graduates) or companies involved in bioremediation research such as Amoco (Madison Area Technical College graduates). Finally, students have found employment in companies involved in medical device manufacturing such as Bristol-Meyar Squibb (Seattle and Shoreline Community Colleges).

Student Demand – Fourteen students enrolled in the first pilot course of the proposed program (BTEC 1010 – Molecular Biology/Biology Techniques) in the Fall of 2000. In the first class meeting the students were made aware that the course was part of a proposed program under development, with review and approval pending. They responded by asking what they could do as students to help convince Salt Lake Community College administrators that there was interest and need for such a training program. As a class, they sent a letter of invitation to President Lynn Cundiff to participate in their bioethics debate.

This Spring Semester there are ten students enrolled in the BTEC 1010 class. Officials at Salt Lake Community College believe that, with approval of a program and accompanying marketing efforts, enrollment for the fall of 2001 will reach twenty-four students.

The interest in biotechnology in Utah can be observed at the level of secondary education as well. Several Utah high schools currently offer biotechnology curriculum in their Science Programs (Weber, Murray, Hunter, Skyline, and Park City High Schools). In the first year that the biotechnology course was offered at Weber High School there were 90 students enrolled. Granite District's Tech Prep Program Information is included in Appendix , along with an agenda from the January 9, 2000 articulation meeting on BioTech- Tech Prep.

Similarly, Murray High School had approximately 55 students enrolled in the biotechnology class in the 1998/1999 school year. Five of the Murray students who participated in their high school biotechnology class were enrolled in the Salt Lake Community College BTEC 1010 course last fall semester.

The success of these secondary Biotechnology Programs has prompted two additional Utah school districts, Salt Lake and Jordan, to develop biotechnology curricula to offer beginning Fall, 2001. Further, in response to the overwhelming interest in biotechnology at the secondary level, the Utah State Office of Education has initiated development of biotechnology standards.

Finally, the development of a two-year Biotechnology Program at Salt Lake Community College is being met with great enthusiasm by secondary teachers who readily see that a two-year program will provide a much needed "next step" for many high school students who want to work in biotechnology research.

Similar Programs - Salt Lake Community College's proposed AAS Biotechnology Program is unique in its design and curriculum requirements, making it very different from other biotechnology-related programs in the state and Intermountain Region. The proposed program will include 11 courses specifically designed for Biotechnology. Two of these courses will have a laboratory component and seven of the courses are actual laboratory/applied skills courses.

There will also be a heavy emphasis on industry involvement in the proposed Salt Lake Community College program. This will include a 2-3 month internship at a local biotechnology company. Further, representatives from local biotechnology companies will be teaching sections of the biotechnology courses, giving the proposed Salt Lake Community College program the unique ability to align the program with the needs of local industry. There are no other similar programs that will provide this level of training offered elsewhere in the state or the Intermountain Region.

Utah State University, in cooperation with the Biotechnology Center, offers advanced 3-4 day courses that focus on a specific technique in biotechnology research. Due to their cost (approximately \$1500) and short duration, they are designed to target technicians currently employed in the industry who wish to improve or expand their training. Typically the companies will pay for these courses.

Thus, the proposed Salt Lake Community College program will be targeting an entirely different audience.

Weber State University offers a Biotechnician Program which combines an A.S. Degree (38 credits) and an institutional certification (30 credits) and takes three years to complete. Most of the courses required for the A.S. Degree and certification are previously existing standard biology and chemistry curricula. The program is augmented with two elective courses that are related to biotechnology laboratory techniques (Micro 4252 and Micro 4354). As discussed above, the program currently offered at Weber State University and the proposed Salt Lake Community College Biotechnology Program are significantly different. The proposed Salt Lake Community College program can be completed in two years as an A.A.S. Degree. It is designed as an independent specialty program with 11 biotechnology-specific courses that focus on laboratory competencies/skills, as defined by local biotechnology industries. Further, there is a heavy emphasis on industry involvement with internships and industry instructors that make it a unique training opportunity for students.

The Community College of Aurora in Aurora, Colorado offers a one-year Certificate of Proficiency in Biotechnology.

Collaboration with Other USHE Institutions - There are a number of potential collaborations with other Utah System of Higher Education institutions and the proposed Salt Lake Community College program.

Collaboration with Utah State University could occur at several levels. Dr. Kamal Rashid, Director of the Biotechnology Center, will be a member of the Program Advisory Committee. He has indicated that a Biotechnology emphasis will be implemented in collaboration with the USU Biology Department for Fall of 2001. Further, he has expressed a desire to develop a four-year Degree in Biotechnology in the next several years. There is a strong possibility for collaboration to jointly offer courses in the context of both the Biotechnology emphasis, as well as the B.S. Degree in Biotechnology.

There has also been discussion about using the Utah State University Biotechnology Center's fermentation facility to teach the Bioprocessing course (BTEC 2060). Representatives of the proposed program anticipate writing collaborative grants with Dr. Afifa Sabir, Education Coordinator at the Utah State University Biotechnology Center. These grants will focus on support of partnerships between Utah State, Salt Lake Community College, and Utah K-12 schools for the establishment and maintenance of biotechnology curriculum in secondary education.

Program representatives would also collaborate with Dr. Louisa Stark at the Genetic Science Learning Center at the University of Utah. This will include development and implementation of biotechnology workshops for training of secondary teachers in the state. Further, Dr. Stark will be a member of the Program Advisory Committee.

Jordan School District as Partner

Salt Lake Community College’s major collaboration for the Biotechnology Program will be with the Jordan School District. The District has broken ground at the SLCC Jordan Campus for a 45,000 square foot technical training building. Within this building, 4,800 square feet will be devoted to biotechnology training. The District will conduct its training in the morning. The facility and its equipment will be available to the College beginning at 3:00 p.m. daily to train Salt Lake Community College biotechnology students. An articulated agreement is currently being developed with the Jordan School District. A letter of support from the District is on file in the Commissioner’s Office.

Benefits - Partnerships between the various institutions of the USHE, as well as other related groups, are important both to the individual higher education institution and to the USHE as a whole. For instance, the partnership with Bio-Link, a National Science Foundation Advanced Technology Center, would provide national exposure for Salt Lake Community College, the Utah System of Higher Education, and the state of Utah. Initial contacts with members of Bio-Link at a national fellows forum in June of 2000 has made the directors of various community college Biotechnology Programs aware that Salt Lake Community College is developing this program. These directors have provided enthusiastic support. The proposed program will create numerous opportunities for extramural support from both state and federal funding agencies. Financial support could eventually also come from local companies that would support the program.

Consistency with Institutional Mission - Salt Lake Community College’s Mission Statement emphasizes a commitment to vocational and technical education, adult and continuing education, and community services education. The proposed program directly supports these commitments. As the proposed program is envisioned, it will emphasize meeting the needs of non-traditional students (via night classes), promoting applied technology education, and promoting economic development for the state, all of which are part of Salt Lake Community College’s mission and goals. The goal of expanding biotechnology education opportunities for high school students also helps to fulfill the community role played by Salt Lake Community College.

SECTION IV

Program and Student Assessment

Program Assessment - Goals for the proposed program and Salt Lake Community College measurements of success follow:

Goal #1

Enroll a minimum of 24 students per year. Measure: Enrollment data

Goal #2

Graduate 21 students with each graduating class. Measure: Graduation data

Goal #3

Track graduate job placement for those seeking Employment.

Measure: Success will be achieved if 90 percent of graduates who are seeking employment are placed in jobs.

Goal #4

Track student interns in the final semester of training to determine employer level of satisfaction. This will be indicative of the effectiveness of the program curricula.

Measure: 90 percent of Salt Lake Community College students will earn a B grade or higher when rated by intern employers.

Goal #5

Membership of Salt Lake Community College's Biotechnology program Advisory Committee will be composed of representatives from at least eight biotechnology firms.

Measure: Confirm a minimum of eight biotechnology firms participating on the Program Advisory Committee.

Goal #6

Recruit high school Biotechnology Students into the Salt Lake City Community College Biotechnology Technician Program.

Measure: Confirm that eight students from high school Biotechnology Programs are enrolled in the Salt Lake Community College Biotechnology Technician Program.

Expected Standards of Performance - In October, 2000, SLCC hosted a DACUM (Developing a Curriculum) to explore a possible Biotechnology Technician Program. DACUM is an approach to occupational analysis which was developed by the Center for Education and Training for Employment at Ohio State University. DACUM is a facilitated process for determining, through the input of a carefully chosen panel of representatives from business, industry and other relevant professions, the competencies or tasks that must be performed by persons employed in a specified job or occupational area.

The DACUM session resulted in identification of specific competencies in a number of areas that must be met by graduates of the proposed program. These competencies can be found in Appendix D

In addition, the University of Washington's Instructional Assessment System (IAS) will be utilized to evaluate student perceptions on the value of each course as they proceed toward their goal of a degree. The IAS assesses student viewpoints in the following areas: course content, instructor competency, understanding of major course content/principles, and the over all course.

Student Assessment - A cumulative examination will be given at the completion of the first year's courses to evaluate the students' progress. These exams will be co-written by Salt Lake Community College biotechnology faculty and industry instructors, and will utilize DACUM criteria as the base measurement.

Student potential as entry-level technicians will be assessed by Salt Lake Community College faculty. One of the most valuable aspects of this formative assessment will be when instructors provide students with feedback on their performance as "pre-service" technicians. This feedback will be constructive, consistent, and immediate, thereby optimizing the value that it has for the student to improve his/her candidacy for a biotechnology technician position. Therefore, every section of laboratory courses will be accompanied by specific formal evaluations to assess student competencies and work characteristics that are relevant to that section. The instructors will complete an evaluation for each student. These evaluations will serve as ongoing, cumulative records of students' progress, and will help instructors to plan the laboratory classroom environment not only to facilitate learning, but also to meet the learning needs of individuals. In addition, all courses will emphasize other formative assessment approaches such as regular in-class practice problems, homework, graded quizzes and evaluation of laboratory notebooks.

Summative evaluations will occur when students in the program are placed as interns at local biotechnology firms. The lead faculty/coordinator will work jointly with supervisors at these firms to assess both the breadth and depth of student research skills.

Continued Quality Improvement - Feedback to Salt Lake Community College biotechnology teachers from the IAS will occur just after the conclusion of each term. The Division Chair to which Biotechnology is assigned will meet with each faculty member to review these course evaluations. However, the key element for student assessment data will be formal, written evaluations provided by employers assessing student performance during intern experiences. These comments on student and program strengths/weaknesses will be used to improve the program.

In addition, the Biotechnology Program Advisory Committee will consist of members of companies who will be hosting student interns. These key advisory members will provide feedback at committee meetings on the satisfaction level of their firms with our students in training. The Salt Lake Community College Program Advisory Committee will also survey employers after graduates have been with firms for one year to determine strengths and weaknesses of the program.

SECTION V
Finance

Budget – The proposed budget for the first five years follows:

	Year 1	Year 2	Year 3	Year 4	Year 5
Salaries					
Full-Time Lead Faculty (12 month)	\$ 46,507	48,367	50,301	52,313	54,405
Full-Time Faculty (9 month)		33,898	35,254	36,664	38,131
Adjunct Faculty*	2,400	8,520	8,860	9,215	9,584
Benefits					
Lead Faculty	19,532	20,314	21,126	21,971	22,850
Faculty		13,559	14,101	14,665	15,252
Adjunct Faculty	240	852	886	921	958
Current Expense**	53,800	37,960	40,237	42,651	45,210
Department Travel					
In State	800	832	865	900	936
Out of State	2,500	2,600	2,704	2,812	2,924
Program Equipment***	123,500	42,000	5,000	5,200	5,408
Learning Resources****	1,000	1,040	1,124	1,169	1,215
Library/Audio/Visual	5,000	2,000	2,220	2,244	2,674
Lease/Jordan District Facility	10,000	10,400	10,810	11,248	11,698
TOTAL	\$265,279	\$222,342	\$193,488	\$201,973	\$211,245

* The teaching load will not require adjunct faculty until the second semester of Year 1 of the program.

** This program involves extensive hands-on training in a laboratory setting. The majority of the current expense budget covers laboratory supplies needed for students to practice research and bench skills.

*** This amount may be reduced by \$100,000 pending collaborations with the Wasatch Front South Consortium.

**** Learning resources will include CD-ROMs to provide animation, software for Bioinformatics class, 3-dimensional models, etc.

Funding Sources - The proposed program will be funded with enrollment growth generated by additional FTE's. In addition, SLCC has received preliminary notice of the approval of a National Science Foundation (NSF) grant which will cover one-half of a faculty FTE position.

Because of SLCC's excellent relationship with the Jordan School District, a significant portion of the facility and equipment cost will be provided through College use of the District applied

technology building. Officials at SLCC are also confident that equipment costs will be reduced through a collaborative agreement with the Wasatch Front South Consortium.

Enrollment growth dollars are expected to be adequate to cover all costs not covered by the sources discussed above.

Impact on Existing Budgets - The program will not be absorbed within current base budgets. No impact on existing budgets is anticipated.

Appendix A
Program Curriculum and Course Descriptions

New Courses to be Added in the Next Five Years

Prefix	Course Number	Title	Credit Hours
BTEC	1020	Fundamentals of Biotech II	3
BTEC	1030	Seminar I	1
BTEC	1040	Seminar II	2
BTEC	1060	Nucleic Acid and Protein Biochemistry	2
BTEC	2010	DNA Manipulation/Analysis	4
BTEC	2020	Protein Separation/Analysis	4
BTEC	2030	Cell Culture Techniques	3
BTEC	2040	Bioprocessing	3
BTEC	2050	Bioinformatics	2
BTEC	2100	Biotechnology Internship	7
Total=31 credit hours			

All Program Courses

Prefix	Course Number	Title	Credit Hours
General Education			
ENGL	1010	Introduction to Writing	3
MATH	1010	Intermediate Algebra	4
COM	1010	Elements of Effective Communication	2
LE	1220	Human Relations for Career Development	3
Total=12 credit hours			
Core Courses			
BIOL	1210	General Biology	3
BIOL	1220	General Biology Lab	0
BIOL	2140	Microbiology	3
BIOL	2150	Microbiology Lab	0
BIOL	2170	Cell Biology	3
BIOL	2180	Cell Biology Lab	0
BIOL	2210	Genetics	3
BIOL	2220	Genetics Lab	0
CHEM	1110	Elem Chemistry	4
BTEC	1010	Fund Biotech I	3
BTEC	1020	Fund Biotech II	3
BTEC	1030	Seminar I	1
BTEC	1040	Seminar II	2

BTEC	1060	Nuc Acid and Prot Biochem	2
BTEC	2010	DNA Manip/Anal	4
BTEC	2020	Protein Sep/Anal	4
BTEC	2030	Cell Culture Techniques	3
BTEC	2040	Bioprocessing	3
BTEC	2050	Bioinformatics	2
BTEC	2100	Biotechnology Internship	7

Sub Total=50 credit hours

Elective Courses

General Education Distribution Areas

Students will choose an additional 3 credit hours from one of the following general education areas:

Fine Arts, Humanities, Interdisciplinary, or Social Sciences 3

Sub Total=3 credit hours

Total Number of Credits for Degree = 65

Appendix B Program Schedule

Sample Full-Time Schedule

Course	Cr	Taught	Prerequisites
First Semester			
BIOL 1210	3	A	w/BIOL 1220
BIOL 1220	0	A	w/BIOL 1210
BTEC 1010	3	F, Sp	none
BTEC 1030	1	F, Sp	none
MATH 1010	4	A	none
ENGL 1010	3	A	none
_____	3	A	none
Second Semester			
BIOL 2170	3	F, Sp	BIOL 1210 w/BIOL 2180
BIOL 2180	0	F, Sp	w/BIOL 2170
CHEM 1110	4	A	MATH 1010 w/CHEM 1130
BTEC 1020	3	F, Sp	BTEC 1010
BTEC 2010	4	F, Sp	BTEC 1010 BIOL 1210
BTEC 1060	2	F, Sp	BIOL 1210 BTEC 1010
Third Semester			
BIOL 2140	3	A	BIOL 1210 w/BIOL 2150
BIOL 2150	0	A	w/BIOL 2140
BIOL 2210	3	F	BIOL 1210* W/BIOL 2220
BIOL 2220	0	F	w/BIOL 2210
COM 1010	2	A	none
BTEC 2020	4	F	BIOL 2170 BTEC 1020 BTEC 1060
BTEC 2030	3	F, Sp	BIOL 2170

Fourth Semester

LE	1220	Hum Rel for Career Devt	3	A	none
BTEC	1040	Seminar II	2	A	w/BTEC 2100
BTEC	2040	Bioprocessing	3	Sp	BTEC 2020
BTEC	2050	Bioinformatics	2	F, Sp	BTEC 2010
BTEC	2100	Biotech Internship	7	A	BTP faculty approval w/BTEC 1040

Advising Notes:

*The CHEM 1210 prerequisite for BIOL 2210 is waived for Biotechnology students.

BTEC 2100 must have Biotechnology faculty approval.

For students that wish to transfer to a four-year institution, MATH 1050 and CHEM 1210/1220 are recommended in place of MATH 1010 and CHEM 1010, respectively.

Appendix C Consultants

The following consultants were involved in the development of the proposed program:

Dr. Tamara Goetz, Ph.D.; Senior Research Scientist at the Huntsman Cancer Institute
Dr. Goetz wrote and submitted a National Science Foundation Advanced Technology Education Project grant to support the proposed program, arranged the DACUM, visited several local biotechnology industries to enlist their support of the proposed program, established collaborations with state universities and local high schools, designed and taught the pilot Biotechnology course for Fall 2000, assembled the Program Advisory Council and designed the proposed curriculum.

Dr. Mike Howard, Ph.D.; Senior Research Scientist at the Eccles Institute of Human Genetics.
Dr. Howard helped to teach the Biotechnology course Fall 2000 and piloted the design of the proposed curriculum.

Dr. Jillaine B. Hadfield, Ph.D.; Assistant Professor at University of Maryland and the Regional Director of Bio-Link and National Center for Biotechnology Education
Dr. Hadfield conducted the August of 2000 market survey for Salt Lake Community College.

Several local industry representatives participated in a DACUM workshop to develop a job profile, and a list of skills/competencies for the proposed program.

Dr. Dave Singer, Ph.D.; Director of San Diego City College Biotechnology program
At the request of Salt Lake Community College, Dr. Singer visited Salt Lake City to address the members of the Utah Life Science Association, the trade association for local life science companies. He spoke about the benefits of a 2-year graduate in biotechnology industry at a luncheon hosted by the Utah Life Science Association. He was accompanied by Dr. John Bauer, CEO of a San Diego-based biotechnology company, who is an advocate of the San Diego City College Biotechnology program.

Dr. Linnea Fletcher, Ph.D.; Director of Austin Community College Biotechnology program.
Dr. Fletcher has provided professional consultation regarding establishing critical partnerships with industry and secondary educators. She is nationally recognized for her work with community colleges in this area.

Dr. Elaine Johnson, Ph.D.; National Director of Bio-Link, A National Science Foundation Advanced Technology Education Center. Dr. Johnson has provided professional consultation regarding the development of Biotechnology programs throughout the United States, and has assisted with the proposed program.

Program Advisory Committee Members

- Dr. Wade Hull, Chief Biomedical Engineer, Zars, Inc.
- Dr. Sasha Kamb, Executive Vice President, Arcaris, Inc.

- Dr. Patricia Freston, Director of Human Resources, NPS Pharmaceuticals
- Dr. Randy Rasmussen, Idaho Technology
- Dr. Rajiv Kulkarni, Associate Director of Technology, Utah State Office of Economic Development
- Dr. Louis Monti, CEO, Pherin Pharmaceuticals, Inc.
- Dr. Louisa Stark, Director of Science Education, University of Utah, Genetic Science Learning Center
- Dr. Kamal Rashid, Director, Utah State University, Biotechnology Center
- Arleen Sawitzke, Salt Lake Community College, Faculty, Department of Biology

Appendix D DACUM Results

- (A) Recognize laboratory safety and industry standards
 - (A1) Observe general lab safety rules
 - (A2) Observe ISO 9000, Good Lab Practices (GLP) and Good Manufacturing Practices (GMP), Quality Control/Assurance, and Validation procedures
 - (A3) Recognize hazardous chemicals and location of MSDS
 - (A4) Recognize biohazards and appropriate handling
 - (A5) Recognize radiation hazards and appropriate precautions

- (B) Prepare Reagents
 - (B1) Determine hazard level of compounds
 - (B2) Convert from moles to grams
 - (B3) Use balance to weigh chemicals
 - (B4) Dissolve and measure volumes
 - (B5) Label chemicals
 - (B6) Determine need to sterilize
 - (B7) Use pH meter
 - (B8) Determine storage conditions
 - (B9) Calculate dilutions

- (C) Perform spectroscopy
 - (C1) Dilute sample
 - (C2) Prepare standards
 - (C3) Set up spectrophotometer
 - (C4) Take readings
 - (C5) Calculate results

- (D) Perform centrifugation
 - (D1) Select appropriate centrifuge, tube, and rotor
 - (D2) Balance tubes or bottles carefully
 - (D3) Convert centrifugal force to RPM
 - (D4) Run centrifuge
 - (D5) Process results

- (E) Keep lab notebook
 - (E1) Follow institutional requirements for documentation
 - (E2) Provide sufficient detail for replication
 - (E3) Develop and refer to standard protocol
 - (E4) Note deviations from standard protocol
 - (E5) Label all samples clearly
 - (E6) Cross reference to other notebooks and databases

- (F) Use microscope

- (F1) Determine appropriate microscope
- (F2) Prepare sample
- (F3) Select appropriate magnification
- (F4) Adjust illumination and focus
- (F5) Document observations

- (G) Grow yeast and bacteria
 - (G1) Make up solid and liquid media
 - (G2) Observe sterile technique
 - (G3) Inoculate and grow under appropriate conditions
 - (G4) Determine cell density
 - (G5) Harvest cells
 - (G6) Analyze colonies

- (H) Perform enzyme assays
 - (H1) Prepare samples and standards
 - (H2) Prepare reagents and co-enzymes
 - (H3) Perform assay under appropriate conditions
 - (H4) Measure Product
 - (H5) Analyze results

- (I) Perform PCR (Polymerase Chain Reaction)
 - (I1) Obtain template
 - (I2) Design primers
 - (I3) Set up reaction and optimize conditions
 - (I4) Use thermocycler to run reactions
 - (I5) Analyze results

- (J) Use antibodies to analyze proteins
 - (J1) Select appropriate technique (Western, ELISA, IP, histological, or chromatography)
 - (J2) Follow selected technique protocol as per Western Blot example (J3-J7)
 - (J3) Run sample on a protein gel
 - (J4) Transfer sample to a membrane
 - (J5) Probe the membrane with a primary antibody
 - (J6) Tag secondary antibody
 - (J7) Detect secondary antibody

- (K) Perform gel electrophoresis
 - (K1) Prepare sample, controls and markers
 - (K2) Prepare agarose or polyacrylamide
 - (K3) Run gel
 - (K4) Stain gel
 - (K5) Document results

- (L) Maintain tissue cultures

- (L1) Maintain sterile technique
 - (L2) Prepare tissue culture media
 - (L3) Obtain starter culture
 - (L4) Pass cells
 - (L5) Monitor media and cells
 - (L6) Harvest cells
 - (L7) Freeze cells
- (M) Perform chromatography
- (M1) Determine correct chromatograph type
 - (M2) Prepare sample and standards
 - (M3) Calibrate column with standards
 - (M4) Run column
 - (M5) Analyze samples
- (N) Perform standard molecular cloning
- (N1) Choose appropriate cloning vector and host
 - (N2) Prepare insert and vector
 - (N3) Ligate insert into vector
 - (N4) Transform host
 - (N5) Identify candidate clones
 - (N6) Verify proper insert
- (O) Obtain DNA sequences
- (O1) Prepare template
 - (O2) Select primer
 - (O3) Submit sample to sequencing facility
 - (O4) Analyze results
- (P) Operate computer software
- (P1) Perform word processing
 - (P2) Use spreadsheet and graphing software
 - (P3) Create presentations
 - (P4) Use Web browser
 - (P5) Perform library and Internet research
 - (P6) Operate databases
 - (P7) Operate software for sequence and structural biological data
- (Q) Perform experimental design and data analysis
- (Q1) Determine objective of experiment
 - (Q2) Design experiment and controls
 - (Q3) Perform experiment
 - (Q4) Analyze data using appropriate computer software
 - (Q5) Perform basic statistical math

- (Q6) Compare results with previous experience and recognize significant differences
- (Q7) Archive and retrieve data and samples

(R) Perform fermentation processes

- (R1) Choose appropriate components of bioreactors
- (R2) Perform batch and continuous cultures
- (R3) Isolate and preserve industrial microorganisms
- (R4) Develop media and inocula
- (R5) Recover and purify fermentation products
- (R6) Characterize and dispose of effluents

Appendix E
Excerpts from Letters of Support

*John M. Taylor, Director ATE
Jordan School District, Sandy, Utah*

“We are very excited to be able to partner with Salt Lake Community College in the creation of courses in Biotechnology...Our facility currently under construction on the Salt Lake Community College Jordan Campus will house one of the most up to date Biotechnology Laboratory Training programs in Utah...We anticipate that your planning process will enable your programs to use the facility...We support your efforts in obtaining approval to move your program to the associate degree level. Our students that matriculate to Salt Lake Community College would be very well served.”

*Wade Hull, Engineering Manager
Zars, Salt Lake City, Utah*

“As a corporation, we believe that this program will help fill an unmet need in the industry...Companies will benefit from decreased training cycles, lower turnover, and increased employee productivity...We are also interested in providing internships as well as part-time and full-time job opportunities for students involved in the program...As the local biotechnology industry is experiencing tremendous growth, we feel that this program is being developed at an ideal time for both students and companies.”

*Alexander Kamb, President and Chief Executive Officer
Arcaris, Salt Lake City, Utah*

“For a variety of practical reasons, we would prefer to hire local people with biotechnology expertise. Thus, we anticipate providing employment opportunities for your graduates as we grow.”

*Dorothy S. Dart, Director
Louisa A. Stark, Director for Science Education
Genetic Science Learning Center
Eccles Institute of Human Genetics, University of Utah*

“We are excited about the proposed collaboration for working with the Salt Lake Community College Biotechnology program to provide enhanced biotechnology experiences for secondary teachers and students.”

*Ellen T. Wilson, Education Program Director
Huntsman Cancer Institute, Salt Lake City, Utah*

“It is with great pleasure that I write in support of...the Biotechnology Training Program...I am very enthusiastic about the value and impact of the proposed program for students in Salt Lake City and the Intermountain West.”

*Jonathon D. Tuttle, Biotechnology Teacher
Hunter High School, Salt Lake City, Utah*

“I have spoken with SLCC educators regarding joint projects such as lectures and field trips. We have also joined together with State of Utah officials and produced standards, objectives and competencies for our introductory biotechnology course. I mention the above items so that you will have an accurate sense of the present strength of the relationship between the college and the local high schools...With the collaborative relationship established, we re now poised to go forward as a team.”

*Donald L. Wright, Assistant to the Directors
Wasatch Front South Regional Consortium, Salt Lake City, Utah*

“The WFS Region is placing high priority on establishing quality biotech programs. It is essential that students who complete the course have follow-up classes in which to enroll. This should include the opportunity to earn an academic degree. We feel the opportunity for high school biotech students to look forward to achieving an A.A.S. degree is essential. The ATE directors in the WFS Region enthusiastically support the establishment of an A.A.S. biotechnology degree at Salt Lake Community College.”

MEMORANDUM

April 11, 2001

TO: State Board of Regents

FROM: Cecelia H. Foxley

SUBJECT: Snow College Request to Offer an Associate of Applied Science Degree in Desktop Publishing/Web Design and a One-Year Certificate in Desktop Publishing–Action Item

Issue

Officials at Snow College request approval to offer an Associate of Applied Science Degree in Desktop Publishing/Web Design and a One-Year Certificate in Desktop Publishing, starting Fall, 2001.

Background

Snow College currently offers a Diploma in Desktop Publishing and is requesting approval to upgrade the Diploma to an Associate of Applied Science Degree in Desktop Publishing/Web Design and to add a One-Year Certificate of completion entitled Desktop Publishing Specialist.

This program is designed to prepare students for careers as Desktop Publishing Specialists, Administrative Assistants, Office Support Staff, Web Designers, Electronic Publishing Specialists, and Entrepreneurs. The curriculum includes core courses from the following departments: Business Education (BUED), Business Management (BMGT), and Computer Information Systems (CIS).

Students with desktop publishing skills are in demand in Utah and nationwide. The Business Education Advisory Committee, Department of Workforce Services, and research from the Internet have provided information substantiating this demand. As computer applications continue to expand, desktop publishing is projected to be one of the top 20 in terms of new jobs created over the 1998-2008 period. Consequently, Snow College students are requesting more classes in desktop publishing and web design due to career opportunities in the job market.

Policy Issues

This proposal has been approved by the institutional Board of Trustees. No USHE institution expressed opposition to this proposal.

Options Considered

After Regents have reviewed the proposal from Snow College to offer an Associate of Applied Science Degree in Desktop Publishing/Web Design and a One-Year Certificate in Desktop Publishing, they may raise issues, request additional information, deny the request or approve the request.

Commissioner's Recommendation

It is the recommendation of the Commissioner that the Regents approve the request by Snow College to offer an Associate of Applied Science Degree in Desktop Publishing/Web Design and a One-Year Certificate in Desktop Publishing , beginning Fall Semester, 2001.

Cecelia H. Foxley, Commissioner

CHF/MAP/GSW
Attachment

ACADEMIC AND APPLIED TECHNOLOGY PROGRAM COMMITTEE

Action Item

Request to Offer an
Associate of Applied Science Degree in Desktop Publishing/Web Design and a One-Year Certificate
in Desktop Publishing

Snow College

Prepared for
Cecelia H. Foxley
by
Michael A. Petersen
and
Gary S. Wixom

April 11, 2001

SECTION I

The Request

Snow College officials request approval to offer an Associate of Applied Science degree in Desktop Publishing/Web Design and a one-year certificate entitled Desktop Publishing Specialist, beginning Fall 2001. This proposal was approved by the institutional Board of Trustees on January 29, 2001.

The Business Education Department at Snow College currently offers a Diploma in Desktop Publishing. Snow College is requesting approval to upgrade the Diploma to an Associate of Applied Science Degree in Desktop Publishing/Web Design and to add a One-Year Certificate of completion entitled Desktop Publishing Specialist.

SECTION II

Program Description

This program is designed to prepare students for careers as Desktop Publishing Specialists, Administrative Assistants, Office Support Staff, Web Designers, Electronic Publishing Specialists, and Entrepreneurs. The curriculum includes core courses from the following departments: Business Education (BUED), Business Management (BMGT), and Computer Information Systems (CIS).

Purpose of Degree. The Business Education Department currently offers courses leading to an entry-level position as an Administrative Assistant with desktop publishing skills. These skills include graphic layout skills that will lead to a professional career in the desktop publishing area. Students will utilize state-of-the-art equipment, specialized graphics software, layout and design principles, communication skills, advertising layouts, multimedia, and computer presentations in business environments.

Admission Requirements. Students will be admitted to the Associate Applied Science Degree and to the Certificate Program through the regular admissions process to Snow College. No special admission requirements exist for this program.

Student Advisement. Student advisement is mandatory for all students attending Snow College. Students will be advised based on their basic skill level and given opportunities to enroll in courses that will enhance their capabilities. Students will have a variety of career information that will guide their choices.

Justification for Number of Credits. The AAS Degree requires the standard 63 semester credits and the one-year certificate requires the standard 30 semester credits.

External Review and Accreditation. No special accreditation will be sought for this degree. Over the last three years, the implementation of this program has been discussed with the Business Education Advisory Committee and with the business students currently enrolled in the Business Education Program. The Business Education Advisory Committee members have been extremely helpful and supportive throughout the planning and development of the program offerings. The members of the advisory committee approved the Core and Elective requirements as well as the content of the new courses which were presented to and approved by the Snow College Curriculum Committee.

The members of the Business Education Advisory committee who participated and supported this process include the following:

Mr. Noel Bailey
Asst. Vice President For Instruction, Snow
College South

Ms. Rosemary G. Bowden
Human Resources Director, Bonneville
Communications

Ms. Connie Christensen
Retired Business Instructor, Snow College South

Ms. Mary Conder
Department of Workforce Services

Ms. Patsy Daniels
Executive Assistant, Snow College South

Mr. Chris Forbes
Clark Knight Photography

Ms. Lorraine Gregerson
SOS Staffing Services

Mr. Byron Harrison
Retired Computer Instructor, Snow College
South

Mr. Jerry Hawley
Custom Fit/STIT/Tech Prep Coordinator

Mr. Clark Knight
Clark Knight Photography

Ms. Debbie McKay
Accountant, Central Utah Technologies

Ms. Sheri Watters
Administrative Secretary, Central Utah
Correctional Facilities

Projected Enrollment. It is anticipated that student enrollment will increase. Students entering the Associate of Applied Science Program will have additional choices to better meet their occupational goals upon the completion of their program at Snow College.

Projected FTE Enrollments and Ratios					
Year	2001-02	2002-03	2003-04	2004-05	2005-06
FTE Enrollments	20	40	40	40	40
Student FTE: Faculty FTE	15:1	15:1	15:1	15:1	15:1

Expansion of Existing Program. The Snow College Business Education Advisory Committee strongly recommended an AAS because industry is not familiar with the post-secondary meaning of the term *diploma*. The expanded Desktop Publishing/Web Design AAS program will better prepare students for careers in desktop publishing and/or web page design in a business setting. The new one-year certificate Desktop Publishing Specialist will be an excellent choice for students who desire the essentials in a short period of time. It is anticipated that many students will choose a one-year certificate and subsequently return to complete the AAS Program. Many students may also opt for a one-year certificate in combination with an AS Degree.

The following is a summary of Business Education completers over the past five years by program at Snow College (Ephraim) and Snow College South:

1999-2000	Total Majors	42
	AAS	12
	Certificate	23
	Diploma	2
	AS	5

(Snow College South, formerly Sevier Valley ATC, offered certificates only prior to 1999-2000.)

1998-1999	Total Majors	46	AS	2
	AAS	7		
	Certificate	33	1995-1996	Total Majors
	AS	6		47
				AAS
				9
				Certificate
				35
1997-1998	Total Majors	50	AS	3
	AAS	15		
	Certificate	31		
	AS	4		

NOTE: The breakdown of AAS, Certificate, and AS students indicates the number of graduates for the year.

1996-1997	Total Majors	48
	AAS	9
	Certificate	37

Faculty. No new faculty will be required to implement this program. In order to expand the areas of emphasis as proposed, one new course will be added to the curriculum. The new Business Education course created to support the new offerings will be taught by Business Education faculty members. Two Computer Information Systems (CIS) courses that will support the new AAS Program will be taught by existing faculty.

Staff. No new staff will be required.

Library. The existing library resources that support the Business Education programs at Snow College are adequate to support the proposed program.

Learning Resources. The Snow College Library and Learning Resource Center currently have sufficient resources to support the program.

SECTION III Need

Program Necessity. Students with desktop publishing skills are in demand throughout the state of Utah and nationwide

Labor Market Demand. Information substantiating this demand was gathered from the Business Education Advisory Committee, Department of Workforce Services, and research from the Internet. Desktop Publishing and Web Page Design are projected to be one of the fastest growing occupations in the country with salaries ranging from \$20,000 to \$60,000. In California alone, there has been a job growth of 119%. As computer applications continue to expand, desktop publishing is projected to be one of the top 20 occupations in terms of new jobs created over the 1998-2008 period. Many related occupations also use desktop publishing, graphic design, and Web page development skills.

Student Demand. The number of students requesting courses in Desktop Publishing and Web Development, have substantially increased during the last year. In the 2000-2001 school year, enrollment in Desktop Publishing classes increased by approximately 33 percent. Students are requesting more classes in desktop publishing and web design due to career opportunities in the job market.

Similar Programs. Similar programs for desktop publishing specialization are available to students at Utah Valley State College (UVSC), Salt Lake Community College (SLCC), and LDS Business College (LDSBC). The program at UVSC—Executive Assistant—Desktop Publishing Emphasis—was used as a guide in the development of the new certificate and degree.

Collaboration with and Impact on Other USHE Institutions. Officials at SLCC, UVSC, and LDS Business College were contacted. Each indicated that they have sufficient enrollment for their respective AAS degrees, and felt that the Snow College program would not have a negative impact on their programs. With regard to UVSC, the effect could be positive if students transfer or pursue four-year degrees in desktop publishing and web design. UVSC has willingly accepted transfer credits from Snow College in the past and coordination efforts will continue in articulating courses for students who transfer.

Benefits. The new AAS desktop publishing degree would enhance the options of AAS students at Snow College. Many students inquire each year about the possibility of specializing in a program leading to a career in desktop publishing. The one-year certificate would also enhance the options of the students at Snow College. Local individuals who desire to update their skills, specialize for a potential position, or enhance their skills for a position they already hold would be served by this new certificate.

Consistency with Institutional Mission. The proposed changes are in harmony with the Snow College mission of educating students, inspiring them to love learning, and leading them to serve others. These changes will provide students access to current industry standards and will help prepare graduates to contribute fully as productive, responsible members of society through their desktop publishing and web design skills.

SECTION IV

Program and Student Assessment

Program Assessment. Program assessment will include written and performance exams included as a part of students' course work. Student attainment of program goals will be monitored and placement rates will be tracked. Employers will be surveyed.

Expected Standards of Performance. Students will be expected to use advanced word processing, desktop publishing features, and elements of design in producing assignments, projects, portfolios, and web pages. The standards and competencies were chosen based on industry standards, comparable programs at other USHE institutions, and job outlook statistics.

Student Assessment. Students will be assessed through assignments, production tests, projects, concepts exams, and portfolios.

Continued Quality Improvement. Surveys and/or interviews will be conducted with former students to evaluate the adequacy of course concepts being applicable to a real-world setting. A continuous review of business periodical research will determine the up-to-date desktop publishing/web design needs of employers.

SECTION V

Finance

Budget. Existing faculty will teach the programs as part of their current teaching assignment, and no additional staff will be needed. The current department budget is sufficient to support the proposed program, and sufficient library resources are available. Equipment will be kept current using the allocated equipment budget.

Funding Sources and Impact on Existing Budgets. No new state funds are being requested, although significant enrollment increases in the future may require additional funding. Approval of the program will not result in a negative impact on existing budgets.

**APPENDIX A
Program Curriculum**

New courses to be added in the next five years. BUED 2430, Advanced Desktop Publishing, 3 credit hours, Spring

This is an advanced course in desktop publishing utilizing page layout, image editing, and illustration software. A scanner and a digital camera will also be used. Graphic art skills will be developed and utilized to create documents that are used by business professionals. Unit projects will be part of a portfolio to illustrate student proficiency in creating a variety of original business documents for advertising and office use. Course prerequisites: BUED 1420, BUED 2420.

All program courses. The proposed Associate of Applied Science program in Desktop Publishing/Web Design will require 63 semester credit hours and will include the following courses:

<i>Associate of Applied Science (AAS)</i>				
Business Education Core				
COURSE NUMBER	COURSE TITLE	SEMESTER CREDITS	DATE COMPLETED	GRADE
BUED 1080	10-Key Data Entry	0.5		
BUED 1420	Word Processing	3.0		
BUED 1430	Adv. Word Processing	3.0		
BUED 1700	PBL	1.0		
BUED 2200	Business Communication	3.0		
BUED 2400	Spreadsheets for Business	3.0		
BUED 2420	Desktop Publishing	3.0		
BUED 2450	Presentations for Business	2.0		
BMGT 1320	Applied Business Math	3.0		
BMGT 2150	Business Ethics	3.0		
BMGT 2650	Principles of Management	3.0		
CIS 1400	Database Applications	2.0		
ENGL 1410	English Mechanics	3.0		
ENGL 2260	Intro. To Tech. Writing	3.0		
	Total Credits:	35.5		

The student must take the core classes *plus* the following to receive their AAS Degree.

Desktop Publishing/Web Design				
COURSE NUMBER	COURSE TITLE	SEMESTER CREDITS	DATE COMPLETED	GRADE
ART 1120 ACOM 1111	Basic Design or Design I	3.0		
BMGT 1480	Advertising and Promotion	3.0		
BUED 1500	Computer Illus. for Bus.	3.0		
BUED 1510	Computer Image Editing	3.0		
BUED 2430	Adv. Desktop Publishing	3.0		
CIS 1801	Beginning Web Site Design	3.0		
CIS 1811	Web Site Development: Introduction	3.0		
Electives	Choose from list	6.5		
	Total Credits:	63.0		

The proposed Desktop Publishing Specialist certificate will require 30 semester credit hours and will include the following courses:

<i>One-Year Certificate of Completion</i>				
Desktop Publishing Specialist				
COURSE NUMBER	COURSE TITLE	SEMESTER CREDITS	DATE COMPLETED	GRADE
Core Classes: BMGT 1320	Applied Business Math	3.0		
BUED 1420	Word Processing	3.0		
BUED 1700	PBL	1.0		
BUED 2200	Business Communication	3.0		
BUED 2350	Office Procedures	3.0		
ENGL 1410	English Mechanics	3.0		
	Total Credits:	16.0		

The student must take the above core classes *plus* the following to receive their certificate.

Desktop Publishing Specialist				
COURSE NUMBER	COURSE TITLE	SEMESTER CREDITS	DATE COMPLETED	GRADE
Emphasis Classes: BUED 1430	Adv. Word Processing	3.0		
BUED 1510	Computer Image Editing	3.0		
BUED 2420	Desktop Publishing	3.0		
BUED 2450	Presentations for Business	2.0		
Electives	Choose from list	3.0		
	Total Credits:	30.0		

General Education. Human relation skills are taught in PBL, Business Ethics, and Principles of Management. Computation skills are taught in Applied Business Math and Spreadsheets. Communication skills are taught in Business Communications, Introduction to Technical Writing, and English Mechanics.

Elective Courses. Accounting (ACCT), Business Management (BMGT), Business Education (BUED), and Computer Information Systems (CIS) courses may be taken but must be approved by the advisor prior to taking the course.

Appendix B

Program schedule. The following is a class schedule recommended for students who choose the proposed Desktop Publishing/Web Design AAS Degree:

ASSOCIATE OF APPLIED SCIENCE Desktop Publishing/Web Design

Semester	Catalog	Curriculum	Credit
FALL YEAR 1	ART 1120	Basic Design	3
	-or-		
	ACOM 1111	Design I	3
	BUED 1420	Word Processing	3
	BUED 1500	Computer Illustration for Business	3
	BUED 1510	Computer Image Editing	3
		Business Electives	3
			15
SPRING YEAR 1	BMGT 1320	Applied Business Math	3
	BMGT 1480	Advertising and Promotion	3
	BUED 1080	10-Key Data Entry	.5
	BUED 1430	Advanced Word Processing	3
	BUED 1700	Professional Business Leaders/PBL	1
	ENGL 1410	English Mechanics	3
			Business Electives
			16.5
FALL YEAR 2	BMGT 2150	Business Ethics	3
	BUED 2200	Business Communications	3
	BUED 2420	Desktop Publishing	3
	BUED 2400	Spreadsheets for Business	3
	CIS 1801	Beginning Web Site Design	3
			15
SPRING YEAR 2	BMGT 2650	Principles of Management	3
	BUED 2430	Adv. Desktop Publishing	3
	BUED 2450	Presentations for Business	2
	CIS 1400	Database Applications	2
	CIS 1811	Web Site Development: Introduction	3
	ENGL 2260	Introduction to Technical Writing	3
			Business Electives
			16.5

The following is a class schedule recommended for students who choose the proposed Desktop Publishing Specialist certificate:

ONE-YEAR CERTIFICATE OF COMPLETION
Desktop Publishing Specialist

Semester	Catalog	Curriculum	Credit
FALL	BMGT 1320	Applied Business Math	3
	BUED 1420	Word Processing	3
	BUED 1510	Computer Image Editing	3
	ENGL 1410	English Mechanics	3
		Business Electives	3
			15
SPRING	BUED 1430	Advanced Word Processing	3
	BUED 1700	Professional Business Leaders/PBL	1
	BUED 2220	Business Communications	3
	BUED 2350	Office Procedures	3
	BUED 2420	Desktop Publishing	3
	BUED 2450	Presentations for Business	2
			15

Appendix C

Faculty.

Lisa Anderson

Associate Professor of Business Education; A.S., Snow College; B.S., Brigham Young University; M.S., Utah State University

Monica Anderson

Business Education Instructor, B.S., M.Ed., Southern Utah University

LaFaun Barnhurst

Business Education Instructor, A.A.S., B.S., Southern Utah University

Stacey McIff

Business Education Instructor, B.S., Southern Utah University

Verl Ritchie

Business Education Instructor, B.A., Idaho State University, M.B.A., University of Idaho

Cozette Roberts

Business Education Instructor, B.S., Southern Utah University

Yvonne Williams

Instructor of Business Education; A.A.S., B.S., M.S., Utah State University

MEMORANDUM

April 11, 2001

TO: State Board of Regents

FROM: Cecelia H. Foxley

SUBJECT: Utah Valley State College Request to Offer Three New Baccalaureate Programs in Chemistry, Mathematics, and Physics -- Introduction

Proposal

Utah Valley State College (UVSC) is proposing to offer three new baccalaureate programs in Chemistry, Mathematics and Physics in its School of Science and Health. This memorandum provides an overview and introduction, and is followed by three separate subsections that address the individual program proposals.

Policy Issues

Before reviewing the requests from UVSC to add these three new B.S. Degree Programs, Regents are asked to reflect upon several issues. Is UVSC's rapid expansion of baccalaureate offerings appropriate if it is to allow each program to mature into a quality offering? Are the resources received by and reallocated throughout the College adequate to support new quality programs and sustain rapid growth? And, is the continuing extensive reliance on adjunct faculty for lower-division courses an acceptable alternative when resources preclude the addition of full-time faculty? These questions are addressed in this introductory section along with concerns raised by other USHE institutions regarding the three proposed programs. Regents will review specific concerns followed by a discussion of the broader issues facing UVSC's program expansion.

The three proposed programs were reviewed by faculty and the Chief Academic Officers from USHE institutions. Concerns most expressed centered around qualifications and number of faculty and laboratory equipment and upgrades. Statewide need for these programs was another major concern. Additional comments were received by the University of Utah and will need to be evaluated in advance of the April meeting.

Qualifications and number of faculty. This issue was raised by USHE faculty for each of the three programs. Specifically, faculty were concerned that the three programs did not

contain the number of doctorally-trained scientists or mathematicians that is required to meet accreditation standards. In response to the comments and suggestions from the other institutions, UVSC will be adding three additional Ph.D. chemists. A Ph.D. biologist will teach the biochemistry course, which will be cross-listed with the biology courses and is appropriate under accreditation guidelines. The new Ph.D. faculty, in addition to three Ph.D. faculty and two laboratory managers already working at UVSC, will teach analytical, organic, inorganic, physical, and environmental chemistry. With the exception of the biologist, the chemistry faculty will teach only for the chemistry area. Thus, seven out of the eight chemistry faculty and staff will have Ph.D.s, which may satisfy accreditation standards. Faculty in physics and mathematics also teach in the chemistry program with primary responsibility in their discipline areas. In addition, all physical science faculty will have three hours of released time per semester to engage in scholarly activities. It is assumed that students will be able to participate with faculty in these efforts.

There will be ten faculty and staff in physics, of which six will hold Ph.D.s in the discipline or in applied physics. In mathematics there are currently 17 faculty members with eight holding the appropriate doctorate. Two additional Ph.D. faculty in mathematics will be hired this spring. Concern was expressed that the UVSC proposed program in mathematics will lack diversity in its offerings. UVSC officials believe that the proposed program will provide appropriate undergraduate courses although not of the breadth offered at institutions with graduate programs. Those commenting on the lack of upper-division courses in analysis, differential equations, applied mathematics, and statistics were assured that UVSC was using standard upper-division texts that cover these mathematical concepts. However, officials at the University of Utah believe that the number and qualifications of faculty in chemistry and physics, as proposed by UVSC, underestimate what are actually needed to develop quality programs.

Laboratory space and equipment. Comments were raised concerning an inadequate number of laboratories, particularly in chemistry, which is a laboratory science, and lack of equipment that is standard in four-year physics programs. UVSC officials stated that currently there are two laboratories used in chemistry. A third would handle most of the proposed program demand, and a fourth is being configured for advanced equipment. A fifth can be made into a combination laboratory and classroom dedicated to chemistry. In physics, there is currently one laboratory that is used heavily and a second which can accommodate the proposed program. A separate room is used for some of the necessary equipment. A laboratory/classroom is available for conversion to a dedicated physics laboratory.

UVSC officials believe that the chemistry laboratories are well-equipped. The equipment in the physics laboratories is adequate and will be used for upper-division offerings. Outside funding will be sought and used to purchase new equipment for the physics laboratories. The College made an internal grant of \$260,000 to its science programs. Most of the money will be spent to purchase new equipment. Officials from the University of Utah believe that the need for equipment is underestimated and that a greater financial outlay would be required.

Broader issues: continuing financial support, program expansion, and program maturation. The issue of continuing funding for the proposed programs has raised concern throughout the system. UVSC has relied primarily on enrollment funding to support the addition of new instructional programs. In the recent past, enrollment growth has been fully funded by the Legislature. However, for the 2001-2002 academic year the Legislature is funding only 78 percent of enrollment growth. In addition, UVSC will increase its tuition by 12.5 percent.

UVSC officials are confident that their 2001-2002 budget will be adequate to support hiring the new full-time instructors needed for the proposed programs, and to support the associated increased laboratory and equipment costs. However, will funds be adequate to support these and other recently approved programs, as they mature in the next several years? Program maturation, with its inherent requirements for careful assessment and the need to make necessary improvements, assures that over time these programs can reach a level of quality that best serves the students, the institution, and the State. Without the time and resources to nurture new programs, the institution may shortchange its students and fail to adequately prepare them for graduate/professional studies or jobs.

Broader issues: resources and adjunct faculty. UVSC officials stated that they would need to adjust for unfunded enrollments by relying extensively on adjunct faculty to teach lower-division courses. They estimate that about 50 percent of instruction at the lower division level will be by adjunct instructors. This raises the question of quality in lower-division offerings, an important part of UVSC's mission. Faculty from the other USHE institutions suggested that UVSC strengthen its lower-division core courses in the sciences and mathematics. The use of adjunct faculty may dilute or preclude efforts by UVSC to support quality programs in science and mathematics by not adequately preparing lower-division students to pursue more demanding upper-division work.

Adjunct faculty are usually well-prepared academically and take their jobs seriously. However, they are hired to teach one or two courses and are not involved in departmental activities that strengthen the performance of full-time faculty who, through collegial connections, benefit from the ideas and experiences of their peers. Adjunct instructors usually teach their courses and then leave to fulfill other obligations. They are not compensated to provide service beyond teaching. Unless additionally compensated to participate, they do not engage in departmental meetings, professional development activities, or advising students.

Broader Issues: State resources and the need for new science and mathematics programs. Officials from other USHE institutions raised concerns about the need for new science and mathematics programs. The universities in the system stated that their upper-division science and mathematics programs are not at full enrollment capacity and new programs would further drain their enrollment potential. In addition, they cited national studies indicating that interest in these three areas is on the wane as demonstrated by lagging enrollments. Suggestions were made to offer UVSC students scholarships to upper-division course work at existing programs. UVSC faculty suggested shutting down existing programs with lagging enrollments as a possible cost-cutting measure.

It must be recognized that UVSC was approved by the Regents to become a four-year institution while continuing to offer a full range of community college programs. The College has moved aggressively to establish four-year programs that are needed by a modern, baccalaureate-granting institution. Inclusion of four-year science and mathematics programs is appropriate given the demands made by the Governor to produce more graduates in science and technology. In addition, this society considers an educated person as one who is versed in the humanities, arts, social sciences, and sciences. A four-year institution must prepare students for both work and graduate or professional study. Preparation in the sciences and mathematics is of equal importance to preparation in the humanities, applied technological fields, and education. Without a strong science and mathematics program, UVSC would not be preparing its graduates for the 21st century. Thus, UVSC's development of the three proposed programs is appropriate given the society in which we live.

Science and mathematics faculty from UVSC have made significant modifications to their program proposals to reflect the valuable suggestions made by their peers throughout the system. In addition, necessary resource commitments have been made to initiate these new degree programs with adequate doctorally-prepared faculty, operating budgets, and facilities. However, additional responses from the University of Utah regarding resource commitments must still be evaluated.

The following subsections of Tab G describe each of the three proposed programs. All three program requests are listed as non-action items. The Regents may choose to continue discussion on the broader issues outlined in this memorandum as well as specific points related to the proposals before making their decision at the June meeting of the Board. If satisfied that the major questions have been resolved, the Board may choose to make the requests action items and take action on the proposals at the April Board meeting.

Commissioner's Recommendations

There are important policy questions raised by the following three proposals. The Regents are asked to review each program proposal on its own merits and consider carefully the broader issues of timing for the introduction of new programs and their requisite resource needs, the use and proportion of adjunct faculty, and the need for these new programs given State resources and the mission and goals of Utah Valley State College. It is recommended that final action on these three requests be made during the June meeting of the Board.

Cecelia H. Foxley, Commissioner

CHF/MAP/PCS

MEMORANDUM

April 11, 2001

TO: State Board of Regents

FROM: Cecelia H. Foxley

SUBJECT: Utah Valley State College Request to Offer a Bachelor of Science Degree in Chemistry
-- Non-Action Item

Issue

Utah Valley State College officials request approval to offer a Bachelor of Science Degree in Chemistry, effective Fall 2001.

Background

Utah Valley State College's mission has evolved over time. Last year, UVSC officials hired a new Dean of the School of Science and Health whose role was to build a science program that would support undergraduate offerings in core science and mathematics areas and build a limited number of upper-division programs. The Dean's plan was to expand the School of Science and Health by providing courses and programs students needed to complete Bachelor's Degrees in Biology, Earth Science, Chemistry, Mathematics, Nursing, and Physics. This plan represents an effort to develop a coherent science and mathematics program that supports each of its discipline areas and provides UVSC students with options in the sciences found at other four-year institutions.

The proposed Bachelor of Science Degree in Chemistry would prepare interested students to obtain employment as chemists and pursue graduate degrees in chemistry. Those holding the baccalaureate degree are likely to find employment in the areas of quality control, analytical testing, or assisting senior chemists in research and development laboratories. Sources cited by UVSC officials state that the median annual salary for baccalaureate-prepared chemists in 1999 was \$50,100. The outlook for employment over the next eight years is reported to be good..

The proposed program is similar to other chemistry programs offered within the USHE. Most of the institutions follow American Chemical Society (ACS) guidelines. UVSC based its

proposed program on the basic concepts recommended by the ACS

Officials from the School of Science and Health have arranged for four laboratories which are designated to handle both lower- and upper-division students. The School currently has three chemistry faculty and a laboratory manager with Ph.D.s in chemistry. Another Ph.D. faculty from biology would teach the biochemistry course. The School expects to hire two additional Ph.D. faculty. Ultimately, seven Ph.D. faculty would provide the instruction for the proposed program.

Policy Issues

Policy issues are addressed in the Introduction memorandum in Tab G.

Options Considered

After Regents have reviewed the proposal from Utah Valley State College to offer a Bachelor of Science Degree in Chemistry, the Regents may raise issues and request additional information in preparation for making a decision to approve or deny the request at the June meeting of the Board. However, if Regents believe that outstanding issues have been satisfactorily resolved, they may choose to advance the request to action status and either approve or deny the request.

Commissioner's Recommendation

It is the recommendation of the Commissioner that the Regents review Utah Valley State College's request to offer a Bachelor of Science Degree in Chemistry, address the specific and broad issues as outlined in the Introduction memorandum, and that they request any additional information that may be required to take action on the proposal at the June meeting of the Board. However, if satisfied that issues have been resolved, the Regents may move the request to action status and either approve or deny the request at the April Board meeting.

Cecelia H. Foxley, Commissioner

CHF/MAP/PCS
Attachment

ACADEMIC AND APPLIED TECHNOLOGY PROGRAM COMMITTEE

Non-Action Item

Request to Offer a Bachelor of Science Degree in Chemistry

Utah Valley State College

Prepared for
Cecelia H. Foxley
by
Michael A. Petersen
and
Phyllis C. Safman

April 11, 2001

SECTION I The Request

Utah Valley State College officials request approval to offer a Bachelor of Science Degree in Chemistry, effective Fall 2001.

SECTION II Program Description

Complete Program Description. In addition to the current descriptions of the Associate of Science Degree with an emphasis in Physical Science, if approved, the following formal program description would appear in the College Catalog and/or other publications about the proposed program:

Programs. Students may receive:

Associate in Science or Arts with an emphasis in Physical Science
Bachelor of Science in Chemistry

Career Opportunities. Graduates with a Bachelor of Science Degree in Chemistry will be prepared to work in industry or pursue a graduate degree in chemistry, medicine or health related professions.

Admission Requirements. A student who wants to pursue a Chemistry Major should meet with the Department Chair or Chemistry Coordinator for advisement. To be formally admitted to the Chemistry program, the student must complete the following courses with a 'C' or better in any course: CHEM 1210, CHEM 1220, CHEM 2310, CHEM 2330, MATH 1210, MATH 1220, PHYS 2210, and PHYS 221L. When these courses are completed as required, the student should apply to the Department Chair for admission to the program as a Chemistry Major.

Graduation Requirements. For graduation with a Bachelor of Science Degree in Chemistry students must:

1. Complete the required minimum of 125 semester credit hours with a minimum of 40 upper-division credits. A minimum of 30 credit hours must be earned at UVSC.
2. A minimum of 64 credit hours must be in the major with a minimum of 20 credits taken at UVSC. A minimum of 25 chemistry credits must be upper-division.
3. Complete all chemistry courses with a minimum grade of 'C' or better.
4. Complete the core and distribution requirements listed for the Associate of Science Degree.
5. Achieve a minimum overall GPA of 2.0 with a minimum GPA of 2.25 in courses in the major.

Required Course Work. In addition to the completion of the general education courses required

of UVSC graduates, students in the Bachelor of Science in Chemistry Program are required to take the following courses:

Chemistry Core

MATH 1220	Calculus II	5
MATH 2210	Calculus III	3
MATH 2270	Linear Algebra	3
MATH 2280	Ordinary Differential Equations	3
MATH 3400	Partial Differential Equations	3
PHYS 2210	Physics for Scientists and Engineers I	3
PHYS 221L	Physics for Scientists and Engineers Lab I	1
PHYS 2220	Physics for Scientists and Engineers II	3
PHYS 222L	Physics for Scientists and Engineers Lab II	1
PHYS 3030	Physics for Scientists and Engineers III	3
PHYS 303L	Physics for Scientists and Engineers Lab III	1
CHEM 2310	Organic Chemistry I	4
CHEM 2330	Organic Chemistry I Lab	1
CHEM 2320	Organic Chemistry II	4
CHEM 2340	Organic Chemistry II Lab	1
CHEM 3210	Analytical Chemistry	4
CHEM 3060	Physical Chemistry I	4
CHEM 3070	Physical Chemistry II	4
CHEM 3100	Inorganic Chemistry	4
CHEM 3110	Inorganic Chemistry Lab	1
CHEM 3600	Biological Chemistry	3
CHEM 3610	Biological Chemistry Lab	1
CHEM 3710	Physical Chemistry Lab	2
CHEM 4000	Instrumental Analysis	2
Total Credits		64

General Education

ENGL 1010	Introduction to Writing (GE)	3
AMERICAN INSTITUTIONS (See Catalog)	(GE)	3
MATH 1210	Calculus I (GE)	5
CHEM 1210	Principles of Chemistry I (GE)	5
CHEM 1220	Principles of Chemistry II (GE)	5
ENGL 2020	Intermediate Writing: Science and Technology	3
PHIL 2050	Ethics and Values	3
HLTH 1100	Personal Health & Wellness	2
PE-S 1300	Fitness for Life	1

HUMANITIES	3
BIOL	3
FINE ARTS	3
SOCIAL/BEHAVIORAL SCIENCE	3
Total Credits	42
Total Chemistry Core Credits	55
Total General Education Credits (GE)	42
Electives	28
Total Credit Hours Required	125

SUGGESTED CURRICULUM PLAN: B.S. Degree in Chemistry**Semester 1**

ENGL 1010 Introduction to Writing (GE)	3
American Institutions (See Catalog) (GE)	3
MATH 1210 Calculus I (GE)	5
CHEM 1210 Principles of Chemistry I(GE)	5
TOTAL	16 Credits

Semester 3

CHEM 2310 Organic Chemistry I	4
CHEM 2330 Organic Chemistry I Lab	1
CHEM 3210 Analytical Chemistry	4
PHYS 2210 Scientists and Engineers I	3
PHYS 221L Scientists and Engineers I Lab	1
MATH 2210 Calculus III	3
TOTAL	16 Credits

Semester 5

CHEM 3060 Physical Chemistry I	4
MATH 3400 Partial Differential Equations	3
PHYS 3030 Scientists and Engineers III	3
PHYS 303L Scientists and Engineers III Lab	1
Biology (see catalog)(GE)	3
Fine Arts	3
TOTAL	17 Credits

Semester 7

CHEM 3710 Physical Chemistry Lab	2
CHEM 4000 Instrumental Analysis	2
Electives	10
TOTAL	14Credits

Total Program Credits: 125

Semester 2

CHEM 1220 Principles of Chemistry II (GE)	5
ENGL 2020 Intermediate Writing (GE)	3
MATH 1220 Calculus II (GE)	5
PHIL 2050 Ethics and Values (GE)	3
TOTAL	16 Credits

Semester 4

CHEM 2320 Organic Chemistry II (GE)	4
CHEM 2340 Organic Chemistry II Lab (GE)	1
PHYS 2220 Physics for Scientists and Engineers II	3
PHYS 222L Physics for Scientists and Engineers II Lab	1
MATH 2280 Ordinary Differential Equations	3
PE S 1300 Fitness for Life	1
HLTH 1100 Personal Health & Wellness	2
TOTAL	15 Credits

Semester 6

CHEM 3070 Physical Chemistry II	4
CHEM 3600 Biological Chemistry	3
CHEM 3610 Biological Chemistry Lab	1
MATH 2270 Linear Algebra	3
Social/Behavioral Science (see catalog)(GE)	3
Humanities (GE)	3
TOTAL	17 Credits

Semester 8

CHEM 3100 Inorganic Chemistry	4
CHEM 3110 Inorganic Chemistry Lab	1
Electives	9
TOTAL	14 Credits

See Appendix A for course descriptions and Appendix B for additional course schedules.

Purpose of Degree. The proposed program will provide students with the education and skills necessary to obtain employment as chemists and pursue graduate degrees in chemistry. The course of study being proposed has been designed to be consistent with national standards. This will facilitate transfer to other institutions, both in state and out, as well as admission to graduate programs in chemistry or related fields.

Student Advisement. Either the Department Chair or Chemistry Coordinator will meet with the student initially. The student will then be assigned to a member of the chemistry faculty for continued advising.

Justification for Number of Credits. The proposed credit hours are within the Regents' guidelines.

External Review and Accreditation. Copies of the proposed program were sent to the chairs of the Chemistry Departments at the University of Utah, Utah State University, Weber State University, and Southern Utah University. Comments received have been incorporated in the development of the proposal.

The proposed program is designed to meet standards of the American Chemical Society (ACS). Approval of the American Chemical Society Committee on Professional Training, a national accreditor, will be sought before the graduation of the first class of students. This approval will allow the chair of the proposed program to certify graduates. ACS guidelines for approval, plans to meet these guidelines, and associated costs have been met in development of this proposal.

Projected Enrollment. Based upon current demand for majors courses, it is anticipated that approximately 15-20 students will be admitted annually into the proposed baccalaureate program. The anticipated faculty: student ratio for upper-division classroom and laboratory courses is 1:15-20.

TABLE ONE
Faculty Student Ratios

Year	# of Faculty	FTE Students Ratio	
2001-2002	2.1	10.5	1:15
2002-2003	2.6	17.6	1:14.67
2003-2004	2.6	20.0	1:16.67
2004-2005	2.6	21.0	1:17.5

2005-2006

2.6

21.0

1:17.5

Expansion of Existing Program. Chemistry has not been an emphasis in the Department of Physical Science. Therefore, there are no major or emphasis enrollment statistics to indicate the likely expansion that will occur. However, enrollments at UVSC have increased nearly 10 percent per year for the past six years. This trend is anticipated to continue for at least the next 10 years. With an increase in overall enrollments, it is reasonable to assume that enrollments in individual programs will also increase.

Table Two indicates enrollments in chemistry and physics courses over the last three fall semesters.

TABLE TWO
Chemistry and Physics Enrollment Trends

COURSE	FALL 98	FALL 99	FALL 00
Chemistry	787	736	802
Physics	199	646	600
Total	986	1382	1402

Faculty. A faculty member would be assigned as program chairperson and would require six hours released time from teaching to fill responsibilities related to this position. Hourly salary would be required each year to provide coverage for new courses to be added to the curriculum, released time for the Department Chair, and three hours released time for each faculty member to conduct research. An additional 2.1 FTE faculty would be needed the first year. In the second year of program implementation, 0.5 FTE faculty would be added. (See Appendix C for faculty list and qualifications.)

Staff. Additional secretarial and laboratory manager services would be needed to support the proposed program, and a future Chemistry Education Program. Funds for this are included in the proposed budget. The portion of these services charged to the proposed program budget would provide 0.50 contract staff the first year and 0.75 contract staff thereafter.

Library. The UVSC Library has an adequate collection of chemistry monographs and journals. The library houses 19 of the major chemistry journals. The majority of major chemistry journals are also available through the library's electronic indexes, including Chemical Abstracts and all major journals of the American Chemical Society. The College participates in the Utah Academic Library Consortium. Through this agreement, UVSC faculty, staff, and students have library privileges at all Utah institutions of higher education. This allows them to borrow materials from any of the

consortium libraries by presenting a current UVSC identification card. Materials not available at UVSC or the nearby Brigham Young University library can be obtained free of charge from other city, state, and national libraries through interlibrary loan.

The number of chemistry and physics monographs in the UVSC library is steadily increasing. Brigham Young University, University of Utah, and Weber State University all have substantial monograph holdings available to UVSC students.

Additional library material would be needed to support this program although resources of the UVSC Library are steadily increasing.

Learning Resources. In order to meet all educational standards set forth by the American Chemical Society, the Department requires:

- 1 Nuclear Magnetic Resonance Spectrometer
- 1 Atomic Absorption Spectrometer
- 1 liquid chromatography
- expendable lab supplies.
- five desktop computers and attachments to the spectrometers.

The need for major laboratory equipment is acknowledged. Private funds are being sought for this expenditure. Also, cooperative agreements for equipment use are being pursued. Expenses for smaller laboratory equipment, expendable lab supplies, and service contracts are included in the budget. Additional laboratory use would increase the costs of waste disposal, which is also included in the budget. The College recently made available \$260,000 to be used for laboratory equipment.

SECTION III

Need

Program Necessity. Utah Valley State College's service area is one of the fastest-growing in the State. No State-funded opportunities for students to obtain a Bachelor Degree in Chemistry exist within the UVSC service area. It is anticipated that demand for four-year programs and degrees, such as chemistry, will increase as student enrollments grow. While labor market demand is one aspect of program need, nationwide there has been a dramatic increase in the number of graduates of chemistry programs that are admitted to medical schools. Many students seeking a Bachelor's Degree in Chemistry do so for the purpose of pursuing graduate education in medicine and related fields.

Labor Market Demand: Utah. The "Utah Job Outlook in Brief" reports that the employment market for chemists will grow through the year 2008.

Mountainland Region. The entry salary for chemists as listed in the Utah Occupational Wages 2001 publication of the Utah Department of Workforce Services is \$12.60 per hour with an average salary of \$18.70 per hour.

The Department of Physical Science at UVSC mailed a survey to twenty-eight Utah Valley companies that employ chemists. Fourteen responses were received. The responses showed a need for chemists. One company said they hire five chemists per year and had to recruit most from outside the State. No opposition to the proposed program was found in the survey. Comments received from potential employers included:

“A B.S. degree is required for any ‘associate scientist’ position and is typical for ‘Lab Technicians’ and related positions. Analytical skills involving methods development, radiation, and instrumentation are becoming increasingly important to our Research & Development and Quality and Assurance Departments.” (Director of Human Resources)

“We have had a difficult time replacing our scientists and have pulled a few in from out of state to fill our positions.” (Human Resources Manager)

“It would be great. We have microbiology and general science departments where this is a good fit.” (Director)

Nationwide. The Bureau of Labor Statistics Occupational Outlook Handbook 2000 indicates that chemists held 98,000 jobs in 1998 in manufacturing firms, state and local governments, and federal agencies. Those holding a Bachelor’s Degree in Chemistry are most likely to work in quality control, analytical testing, or assisting senior chemists in research and development laboratories. The outlook for employment in chemistry is good, with the expectation that employment of chemists will grow as will other fields during the 2000-2008 period. They report the median annual earnings of chemists in 1998 to be \$46,220. The American Chemical Society reported the median annual salary of their members who held a bachelor’s degree to be \$50,100 in 1999.

Student demand. A UVSC student survey indicated there is a large demand for a B.S. Degree in Chemistry. The survey also indicated that many upper-division chemistry classes are needed by students in other areas of interest such as biology, earth science, and allied health. Therefore, a four-year Chemistry Program is needed to support other areas. The proposed program is necessary as a core science program for the School of Science and Health. Without the proposed Chemistry Program, it will be difficult for other science programs already approved at UVSC to grow and develop fully.

Utah Valley State College conducted a needs assessment in January 2001. A total of 729 students enrolled in chemistry, physics, and mathematics classes were surveyed. A Bachelor of Science Degree in Chemistry at UVSC was supported by 93 percent of the students surveyed. Many specific

comments indicated a desire for the Program.

The responses to the following question show many students are interested in pursuing a Bachelor's Degree in Chemistry at UVSC.

If Utah Valley State College offered a B.S. in Chemistry would you . . .	
a. be interested in enrolling as soon as the program started	81
b. be interested in enrolling in the next five years	38

In addition, 82 students answered "yes" to the question, "Do you plan to pursue a baccalaureate degree in Chemistry at another institution in the next five years if UVSC does not offer a program?" This clearly shows that students want to obtain the proposed program even if they must leave UVSC.

Similar Programs. The following Utah schools offer baccalaureate degrees in chemistry similar to the program being proposed by UVSC: Southern Utah University, Utah State University, University of Utah, Weber State University, Brigham Young University, and Westminster College. In addition, similar programs are provided at the major universities and four-year colleges in surrounding states.

Most institutions follow American Chemical Society guidelines. Thus, there will be no major differences between the proposed program and those offered elsewhere. Much of the content in the proposed program is composed of the core concepts expected in a Chemistry Program making this program similar to existing programs. (See Appendix D for Accreditation information.)

Collaboration with and Impact on Other USHE Institutions. The other USHE school mentioned above were contacted and received the program proposal for their review and suggestions. Several suggestions from these responses have been included in the proposal.

Because of the increase of population in the UVSC area and the increasing demand for chemists, it is anticipated that a Bachelor of Science Degree in Chemistry would have little if any impact on similar programs in the State. Potentially, the proposed program may increase the number of students in graduate programs in Chemistry at other state institutions.

Benefits. The School of Science and Health at Utah Valley State College is a growing and dynamic educational center. Currently, several Associate Degrees and Bachelor's Degrees in Biology and Earth Science are granted. Long term planning has led to the development of a core of baccalaureate degrees, including chemistry. The core of Science and Science-based degrees allows UVSC to create programs that interact and build on each other, thus creating a learning environment that is synergistic and additive for the students. UVSC officials are confident that the College can become a stronger institution with the teaching of science and faculty scholarship that will result from the addition of these degree programs.

The chief beneficiaries of the proposed program would be students from the rapidly-growing Utah Valley area who wish to pursue bachelor degrees, but are not able to attend other higher education institutions within the State. UVSC and the USHE will benefit from the enrollments in these programs and the support of constituents whose needs are being met in this service region.

Consistency with Institutional Mission. The development and incorporation of the proposed program would complement the mission of Utah Valley State College. The UVSC Mission Statement reads, in part, “Utah Valley State College is dedicated to providing a broad range of quality academic, vocational, technical, cultural, and social opportunities and experiences designed to encourage and assist students in attaining their goals and realizing their talents and potential, personally and professionally. The college is committed to meeting student and community needs for occupational training . . . ”

A Bachelor’s Degree in Chemistry could be used to enter a graduate degree program or employment in industry. This complements the mission of the School of Science and Health to provide “. . . programs to meet community needs for professional education.” The addition of the Chemistry degree will further the Department’s mission to provide students with “. . . knowledge and understanding of principles and skills needed for careers in the physical sciences.”

SECTION IV

Program and Student Assessment

Program Assessment. The goal of the proposed program is to prepare baccalaureate-trained chemists for employment in industry and postgraduate education. The proposed method of assessment for the Bachelor of Science in Chemistry is to perform exit and follow-up interviews for graduates of the proposed program. Information obtained will be reviewed and discussed by all chemistry faculty. It will be decided if any revisions are needed to strengthen and improve the program. In addition, the proposed program will be reviewed to assure that it meets current American Chemical Society standards. Potential employers in the community will be contacted to learn if graduates are well prepared for employment.

Expected Standards of Performance. Upon graduation the student should:

1. keep legible and complete experiment records;
2. synthesize and characterize inorganic and organic compounds;
3. perform accurate and precise quantitative measurements;
4. use and understand modern instruments, particularly NMR, IR, and UV-vis spectrometers, gas and liquid chromatographs, electrochemical instruments, and laboratory computers;
5. interpret experimental results and draw reasonable conclusions;
6. analyze data statistically and assess reliability of results;

7. anticipate, recognize, and respond properly to hazards of chemical manipulations;
8. design experiments;
9. plan and execute experiments through the use of the literature;
10. communicate effectively through oral and written reports;
11. be proficient with partial derivatives and some knowledge of differential equations;
12. understand the basic principles of linear algebra;
13. apply statistics to validation of data and design of experiments;
14. utilize computers to develop spreadsheets, numerical and nonnumerical algorithms, simulations, data acquisition, and use of databases for information handling and retrieval.

Student Assessment. Tests, quizzes, and homework will be used for formative assessment. Comprehensive final exams, exit, and follow-up interviews will be used for summative assessment.

The Department Chair, Chemistry Coordinator, or Chemistry Adviser would conduct an exit interview with each graduate. During the interview, arrangements would be made to contact the graduate by mail, telephone, or e-mail for a follow-up interview one year later. In the exit interview, graduates would be asked their perceptions of how well the program has prepared them, their plans for the future, and their perceptions of strengths and weaknesses of the program.

A year following the exit interview, graduates would be contacted as arranged. They would be asked about employment and any further education they have sought after leaving UVSC. They would be asked about their views of how well the proposed program prepared them for their present activities, and for suggestions to improve the program.

Continued Quality Improvement. All assessment information would be discussed by all chemistry faculty. The proposed program would be compared annually to the American Chemical Society standards. New courses would be developed and other improvements made to meet any new standards.

SECTION V Finance

Budget:

	2001-2002	2002-2003	2003-2004	2004-2005	2005-2006
SALARIES AND WAGES	\$64,946	\$101,084	\$105,127	\$109,332	\$113,706

BENEFITS	\$ 21,420	\$35,405	\$36,821	\$38,294	\$39,826
CURRENT	\$15,500	\$16,000	\$16,000	\$6,000	\$16,000
LIBRARY	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000
EQUIPMENT	\$12,500	\$0	\$0	\$12,500	\$0
TRAVEL	\$1,000	\$1,500	\$1,500	\$1,500	\$1,500
TOTAL	\$117,366	\$154,989	\$160,448	\$178,626	\$172,031

Funding Source. Enrollment growth funds and tuition increases would be used to fund this program. A commitment for \$260,000 to be used for laboratory equipment has been made by College officials. Acquisition of some major laboratory equipment will require obtaining private donations that are currently being sought.

Reallocation of Funds: Some reallocation of funds will occur to partially fund the proposed program.

Impact on Existing Budgets: Minimal financial impact on other programs in the institution is anticipated.

Appendix A

Program Curriculum.

New courses to be added in the next five years. List all new courses to be developed in the next five years--by prefix, number, title, and credit hours.

Course Number	Title	Credit Hours
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The proposed program will require nine new chemistry courses. The following new courses would be offered to meet the requirements of this program:

CHEM 3060	Physical Chemistry I	4:4:0
CHEM 3070	Physical Chemistry II	4:4:0
CHEM 3100	Inorganic Chemistry	4:4:0
CHEM 3110	Inorganic Chemistry Laboratory	1:0:4
CHEM 3610	Biological Chemistry Laboratory	1:0:4
CHEM 3710	Physical Chemistry Laboratory	2:0:6
CHEM 4000	Instrumental Analysis	2:2:0
CHEM 495R	Advanced Topics in Organic Chemistry	3:3:0
CHEM 499R	Independent Study and Research	1-4:0:3-12

All program courses.

Course Number	Title	Credit Hours
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General Education

ENGL 1010 Introduction to Writing	3:3:0
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Prerequisite: COMPASS Writing/DRP scores of 80+/77+, or ACT English/ACT Reading scores of 19+/19+, or completion of ENGL 0990 and RDG 1170 each with a grade of C- or higher, or challenge by essay assessment for a \$20 fee.

Emphasizes, in writing intensive workshops, rhetorical knowledge and skills. Teaches critical reading, writing, and thinking skills. Explores writing situations as complex and recursive processes. Enhances basic literacies, addressing both rhetorical problems and conventions of language use (within the context of Standard Written English). Three major essays with graded revision(s), microthemes, in-class writing and collaboration, portfolios, and journals.

ENGL 2020 Intermediate Writing: Science and Technology	3:3:0
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Prerequisite: ENGL 1010

Explores public issues involving science and technology. Invokes problems for exploration. Emphasizes the production of well-reasoned and carefully researched written arguments that

inquire, interrogate, and negotiate meanings across a diverse array of positions and in a variety of contexts, including writing about science and technology issues, and technical and/or professional documents. Includes at least one major research project (possible more), annotated bibliography and/or appendices, oral presentations (individual and/or group), portfolios, in-class writing, and collaboration. May include basic requirements for professional and technical documents (memos, letters, reports, and more).

CHEM 1210 Principles of Chemistry I **5:4:3**

Prerequisites: Math 1050 or equivalent

An introductory course covering fundamentals of chemistry. First semester of a full-year course primarily for students in engineering, the physical sciences, and the biological sciences. Emphasizes descriptive and modern applied chemistry. Studies fundamentals of laboratory techniques, chemical reactions and reactivity. Includes lab.

CHEM 1220 Principles of Chemistry II **5:4:3**

Prerequisites: CHEM 1210

Second semester of an introductory course covering fundamentals of chemistry. Primarily for students in engineering, the physical sciences and the biological sciences. Emphasizes descriptive and modern applied chemistry and qualitative analysis. Further develops fundamentals of laboratory techniques, chemical reactions and reactivity. Includes lab.

HLTH 1100 Personal Health & Wellness **2:2:0**

Examines the basic health “wellness” concept of good health through healthy living. Develops a greater appreciation for bodies and understanding of requirements to maintain or achieve good physical, mental, emotional, social, and spiritual health. Includes lecture, discussion groups, guest lecturers, media, and role-playing.

MATH 1210 Calculus I **5:5:0**

Prerequisite: One of the following: MATH 1050 and 1060, each with a grade of C- or better; MATH 1065 with a grade of C- or better; recommended placement by the COMPASS test; or instructor approval

Includes limits and continuity, differentiation, applications of differentiation, integration, applications of integration, derivatives of the exponential functions, logarithmic functions, inverse trigonometric functions, and hyperbolic functions, and related integrals. Prerequisite for calculus-based sciences.

PE-S 1300 Fitness for Life **1:5:1.5**

Required for AA/AS degree. Provides an individualized approach to physical fitness. Teaches principles of cardiovascular endurance, weight control, strength, and ability. Students apply learning by writing and engaging in a personalized fitness program.

PHIL 2050 Ethics and Values **3:3:0***Prerequisite: ENGL 1010*

A demanding transfer course, designed to challenge students to (1) explore and clarify their values; (2) critically read works of philosophy, literature, religion, and history toward understanding the basis of their ethical views; and (3) read, study, research, discuss, and write about difficult ethical issues. Focuses on issues of good vs. evil, justice vs. injustice, equality vs. inequality, and the necessity of defining and examining happiness of values. This confrontation with major philosophical concepts and systems is intended to engage students in serious reflection on issues of ethics and values as they relate to the students' own lives.

American Institutions (See Catalog)	3
Humanities	3
Biology	3
Fine Arts	3
Social/Behavioral Science	3

Sub-Total	42
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Core Courses**Chemistry****CHEM 2310 Organic Chemistry I** **4:4:0***Prerequisites: CHEM 1210 and 1220*

The first of a series of two organic chemistry classes for students majoring in science and for those interested in careers in medicine, dentistry, veterinary science, and pharmacy, who must complete two semesters of organic chemistry. Teaches bonding and structures of organic molecules. Explores the relationship between structure and reactivity of organic functional groups. Introduces the concepts of nomenclature, stereochemistry, and reaction mechanism.

CHEM 2330 Organic Chemistry I Lab **1:0:4***Pre- Co-requisite: CHEM 2310*

The first of a series of two laboratory courses to accompany CHEM 2310 and 2320. For students majoring in science and those interested in careers in medicine, dentistry, veterinary science, and pharmacy. Introduces safety in organic chemistry lab and chemical waste disposal. Teaches basic separatory, purification, and analytical techniques in organic chemistry such as crystallization, melting points, distillation and chromatography. Introduces organic synthesis using simple organic reactions. Introduces product isolation.

CHEM 2320 Organic Chemistry II **4:4:0***Prerequisite: CHEM 2310*

The second of a series of two organic chemistry classes for student majoring in science and for those interested in careers in medicine, dentistry, veterinary science, and pharmacy, who must complete two semesters of organic chemistry. Introduces spectroscopic techniques used in identification of organic compounds. Teaches carbon-carbon bond formation strategies. Introduces the concept of aromaticity. Teaches free radicals and their effects on environment and life. Surveys biologically important organic molecules such as carbohydrates, proteins, lipids, and nucleic acids.

CHEM 2340 Organic Chemistry II Laboratory **1:0:4**

Prerequisite: CHEM 2330

Pre- or Co-requisite: CHEM 2320

The second of a series of two laboratory courses to accompany CHEM 2310 and 2320. For students majoring in science and those interested in careers in medicine, dentistry, veterinary science, and pharmacy. Provides hands-on experience in organic synthesis using a series of single and multistep transformations. Teaches identification of products of reactions using spectroscopic techniques. Explores biologically important organic molecules.

CHEM 3060 Physical Chemistry I **4:4:0**

Prerequisites: MATH 2210 and PHYS 2220

Introduction to the laws of thermodynamics and chemical thermodynamics. Also covers changes of state, equilibrium and introduction to quantum mechanics.

CHEM 3070 Physical Chemistry II **4:4:0**

Prerequisite: CHEM 3060

Continuation of CHEM 3060. Covers quantum mechanics, spectroscopy, kinetics, and statistical thermodynamics.

CHEM 3100 Inorganic Chemistry **4:4:0**

Recommended prerequisite: CHEM 3060

Review of major trends across the periodic table. Survey of basic structure, bonding, and oxidation states of the elements. Introduction to inorganic stereochemistry including coordination compounds.

CHEM 3110 Inorganic Chemistry Laboratory **1:0:4**

Prerequisite: CHEM 3210

Corequisite: CHEM 3100

Laboratory designed to follow or be taken concurrently with CHEM 3100.

CHEM 3210 Analytical Chemistry **4:2:6**

Prerequisites: CHEM 1210 and 1220

Studies principles of quantitative analysis, stoichiometry, equilibrium theory, volumetric and

gravimetric analysis. Includes introduction to instrumental methods and error analysis.

CHEM 3600 Biological Chemistry **3:3:0**

Prerequisite: CHEM 2320

Introduces principles of the chemical processes that define living organisms. Covers structure and function of proteins, carbohydrates, lipids and nucleic acids. Explores metabolic pathways, biosynthesis, enzymatics, thermodynamics, membrane dynamics and related processes within a living cell. Emphasizes molecular mechanisms of reactions and their outcome.

CHEM 3610 Biochemistry Laboratory **1:0:4**

Prerequisite: CHEM/BIOL 3600

Corequisite: CHEM/BIOL 3600

Introduces laboratory techniques in biochemistry. Studies methods and theory behind purification of proteins and nucleic acids including chromatography and electrophoresis. Uses methods in assessing enzyme activity and kinetics and protein structure analysis. Includes analysis and manipulation of DNA and RNA.

CHEM 3710 Physical Chemistry Laboratory **2:0:6**

Prerequisite: CHEM 3070

Corequisite: CHEM 4000

Experiments in selected areas of physical chemistry. Emphasizes quantitative techniques of analysis.

CHEM 4000 Instrumental Analysis **2:2:0**

Prerequisite: CHEM 3210 and CHEM 3070

Corequisite: CHEM 3710

Covers modern instrumental methods and basic principles of instrumentation. Includes spectroscopic and chromatographic analysis.

MATH 1220 Calculus II **5:5:0**

Prerequisite: MATH 1210 with a grade of C- or better

Includes arc length, area of a surface of revolution, moments and centers of mass, integration techniques, sequences and series, parametrization of curves, polar coordinates, vectors in 3-space, quadric surfaces, and cylindrical and spherical coordinates. Prerequisite for calculus-based sciences.

MATH 2270 Linear Algebra **3:3:0**

Prerequisite: MATH 1220 with a grade of C- or better

Includes matrices and systems of equations, determinants, vector spaces, linear transformations, orthogonality, and eigenvalues and eigenvectors.

MATH 2280 Ordinary Differential Equations 3:3:0*Prerequisite: MATH 2210 with a grade of C- or better*

Includes separable equations, linear differential equations, differential operators and annihilators, variation of parameters, power series solutions of differential equations, Laplace transforms, systems of linear differential equations, and numerical methods.

MATH 2210 Calculus III 3:3:0*Prerequisite: MATH 1220 with a grade of C- or better*

Includes partial derivatives, gradients, Lagrange multipliers, multiple integrals, line integrals, Green's Theorem, surface integrals, the Divergence Theorem, and Stokes' Theorem.

MATH 3400 Partial Differential Equations 3:3:0*Prerequisite: MATH 2280 with a grade of C- or better*

Includes Bessel functions, Legendre polynomials, Fourier analysis, partial differential equations, and boundary value problems.

PHYS 2210 Physics for Scientists and Engineers I 3:3:0*Prerequisite: MATH 1060 and 1050**Pre- or Co-requisite: MATH 1210**Corequisite: PHYS 221L*

A calculus based class for science and engineering majors. A theoretical and applied course covering the principles of mechanics, fluids and thermal physics.

PHYS 221L Physics for Scientists and Engineers I Lab 1:0:3

Designed to accompany PHYS 2210. Provides firsthand experience with laws of mechanics, thermal physics, and scientific data analysis. Includes on hour of recitation.

PHYS 2220 Physics for Scientists and Engineers II 3:3:0*Prerequisite: PHYS 2210**Corequisite: PHYS 222L*

For science and engineering majors. A continuation of PHYS 2210. Covers electrostatics, electric currents, magnetism, and solid state electronics.

PHYS 222L Physics for Scientists and Engineers II Lab 1:0:3

Designed to accompany PHYS 2220. Provides firsthand experience with laws of electricity, magnetism, and scientific data analysis. Includes on hour of recitation.

PHYS 3030 Physics for Scientists and Engineers III 3:3:0*Prerequisite: PHYS 2210**Corequisite: PHYS 223L*

For science and engineering majors. A continuation of PHYS 2210. Covers simple harmonic motion, acoustics, optics, and nuclear physics.

PHYS 303L Physics for Scientists and Engineers III Lab **1:0:3**

Designed to accompany PHYS 2230. Provides firsthand experience with the laws of harmonic motion, waves, optics, nuclear physics, and scientific data analysis. Includes one hour of recitation.

Chemistry Core Sub Total **55**

Elective Courses

CHEM 495R Advanced Topics in Organic Chemistry **3:3:0**

Prerequisite: CHEM 2310 and CHEM 2320 or Instructor Approval

For students majoring in Chemistry. Varies from semester to semester. May be repeated for a maximum of nine credits. Topics include organic synthesis, reaction mechanisms, and identification of organic compounds.

CHEM 499R Independent Study and Research **1-4:0:3-12**

Prerequisite: Instructor Approval

Uses independent study on selected topics and conducting experiments in the same topic. Provides guidance by a faculty member. May be taken for a maximum of four credits.

Sub Total **28**

Track/Options (if applicable)

Total Number of Credits **125**

Appendix B

Program schedule.

B.S. Degree in Chemistry

Semester 1

ENGL 1010 Introduction to Writing (GE)	3
American Institutions (See Catalog) (GE)	3
MATH 1210 Calculus I (GE)	5
CHEM 1210 Principles of Chemistry I(GE)	5
TOTAL	16 Credits

Semester 2

CHEM 1220 Principles of Chemistry II (GE)	5
ENGL 2020 Intermediate Writing (GE)	3
MATH 1220 Calculus II (GE)	5
PHIL 2050 Ethics and Values (GE)	3
TOTAL	16 Credits

Semester 3

CHEM 2310 Organic Chemistry I	4
CHEM 2330 Organic Chemistry I Lab	1
CHEM 3210 Analytical Chemistry	4
PHYS 2210 Scientists and Engineers I	3
PHYS 221L Scientists and Engineers I Lab	1
MATH 2210 Calculus III	3
TOTAL	16 Credits

Semester 4

CHEM 2320 Organic Chemistry II (GE)	4
CHEM 2340 Organic Chemistry II Lab (GE)	1
PHYS 2220 Physics for Scientists and Engineers II	3
PHYS 222L Physics for Scientists and Engineers II Lab	1
MATH 2280 Ordinary Differential Equations	3
PE S 1300 Fitness for Life	1
HLTH 1100 Personal Health & Wellness	2
TOTAL	15 Credits

Semester 5

CHEM 3060 Physical Chemistry I	4
MATH 3400 Partial Differential Equations	3
PHYS 3030 Scientists and Engineers III	3
PHYS 303L Scientists and Engineers III Lab	1
Biology (see catalog)(GE)	3
Fine Arts	3
TOTAL	17 Credits

Semester 6

CHEM 3070 Physical Chemistry II	4
CHEM 3600 Biological Chemistry	3
CHEM 3610 Biological Chemistry Lab	1
MATH 2270 Linear Algebra	3
Social/Behavioral Science (see catalog)(GE)	3
Humanities (GE)	3
TOTAL	17 Credits

Semester 7

CHEM 3710 Physical Chemistry Lab	2
CHEM 4000 Instrumental Analysis	2
Electives	10
TOTAL	14 Credits

Semester 8

CHEM 3100 Inorganic Chemistry	4
CHEM 3110 Inorganic Chemistry Lab	1
Electives	9
TOTAL	14 Credits

Total Program Credits: 125

Appendix C

Faculty.

Faculty in the Department of Physical Science have the educational and teaching background required for the Chemistry Program. The following list identifies current contract faculty members of the Department of Physical Science who would have direct responsibility for chemistry courses:

Gamini Gunawardena

Highest Degree: Ph.D. in Chemistry, University of Utah
 Faculty at Utah Valley State College 1996-present
 Current rank: Assistant Professor
 Other positions: Texas A & M International University, Assistant Professor, 1995-1996
 Areas of interest: Organic Chemistry

Harvey Mecham

Highest degree: Ph.D. in Zoology with minor in Biochemistry, Brigham Young University
 Faculty at Utah Valley State College 1981 to present
 Current rank: Professor
 Other positions: Faculty, Brigham Young University 1966-1968
 Chief of Radiochemistry; Utah State Department of Health, Bureau of Environmental Monitoring 1972-1981
 Areas of Interest: Radiomolecular Chemistry, Computer Science

Dee Oyler

Highest degree: Ph.D. in Physical Chemistry, Brigham Young University
 Faculty Utah Valley State College 1987-present
 Current Rank: Professor
 Other Positions: Director of Quality Control, Supervisor of Clinical Laboratory and Director of Laboratories, Albion Laboratories 1972-1985
 Associate Instructor, University of Utah, 1985-1987
 Areas of Interest: Thermodynamics, solid/liquid phase equilibria.

Paul L. Tayler

Highest degree: Ph.D. in Metallurgy with emphasis in Materials, University of Utah
 Faculty Utah Valley State College 1982 to Present
 Current Rank: Professor
 Other Positions: Environmental Scientist, Kennecott Copper Corporation, 1969-1982
 Product Metallurgist 1969-1976
 Environmental Supervisor (environmental monitoring and computer

modeling) 1976-1982
 Air quality consultant (monitoring and modeling), 1982-present.
 Areas of interest: Computer modeling of atmospheric processes.

Currently advertising for an additional faculty in analytical and inorganic chemistry.

Faculty of the Department of Physical Science who would teach the physics courses are:

Masood Amin

Highest degree: M.S. in Mechanical Engineering, Brigham Young University
 Faculty at Utah Valley State College 1990-present
 Current Rank: Instructor (Adjunct instructor 1990-1997)
 Other Positions: Adjunct Instructor, Westminster College, 1992-1994
 Areas of Interest: Thermal sciences, machine design and materials science

Malcolm Crawford

Highest degree: M.S. in Electrical Engineering, Brigham Young University
 Faculty at Utah Valley State College 1985-present
 Current rank: Professor
 Other positions: Senior Design Engineer, Tronac, Inc., 1965-1967
 Electronic Media Dept. Supervisor, Brigham Young University, 1967-1970
 Electrical Engineering Dept. Senior Technician, Brigham Young University, 1970-1985
 Senior Engineer and consultant, Eyring Research Institute, 1982-1984
 Areas of interest: Physics, engineering

Quinton Hurst

Highest Degree: Ph.D. in Physics, Univeristy of Arizona
 Faculty at Utah Valley State College 2000-
 Current Rank: Assistant Professor
 Other Positions: Research Associate Experimental Solid Group 1995-2000
 Areas of Interest: Physics Modeling, solid state physics

Phillip L, Matheson

Highest Degree: Ph.D., Plasma Physics, Brigham Young University
 Faculty at Utah Valley State College to begin July 2001
 Current Rank: Assistant Professor
 Other positions: Scanning Electron Microscopist Technician Arizona State University, 1979-1981
 Transmission Electron Microscopist Technician, Arizona State

University, 1981-83
 Research Assistant and Teaching Assistant, Brigham Young University, 1983-1989
 Physics tenure track faculty, Ricks College, 1989-90; Post doctoral fellow

Paul Mills

Highest degree: M.S. in Physics, Brigham Young University
 Teacher Certification Program, University of Utah
 Faculty at Utah Valley State College 1982-present
 Current Rank: Professor
 Other positions: Holosonics, Inc. Research Assistant, Production Supervisor and Training Specialist, 1978-80
 Preston High School Science and Physics teacher, 1980-1982
 Areas of Interest: Optics, thermodynamics, celestial mechanics, planetary science and astronomy

Michael Perkins

Highest degree: M.A. in Physics, Brigham Young University
 Faculty at Utah Valley State College 1970-present
 Current Rank: Professor
 Other Positions: Butelle N.W. Labs, Research Nuclear Chemist, 1968-1970
 Areas of interest: Nuclear Physics and Reactor research; physics course writing

One faculty with expertise in chemistry related areas is based the Department of Biology, but will assist in biochemistry courses.

Bruce D. Parker, Ph.D. in Molecular Biology/Biochemistry, Utah State University, 1988.
 Post-doctoral fellowship, Ludwig Institute for Cancer Research, London, 1988-90.
 Post-doctoral Fellow, St. Jude Children's Research Hospital, 1990-92.
 Assistant Professor, Utah Valley State College, 1992- 1998
 Associate Professor and Chair, Utah Valley State College, 1998- present (tenured 1999)
 Area of interest: Transforming genes of oncogenic viruses.

Appendix D

American Chemical Society Guidelines and Progress Toward Meeting Guidelines

Ia. Scope and Organization of the Chemistry Program: Requirements in this section include “The chemistry program should be administered by a chemistry department organized as an independent unit with control of an adequate budget. The department should be involved in and exercise reasonable control over faculty selection and promotion, course development, assignment of teaching responsibilities, grading standards, and similar intradepartmental activities. At those institutions where the department is administered as a division of a larger unit, it is essential that the chemistry faculty have enough autonomy and budget control to carry out these functions and responsibilities within the division. The institution should have procedures for periodic self evaluation of its programs that assess their effectiveness, their achievements, and their compatibility with other institutional objectives.”

Implementation of the proposed program requires the establishment of a Department of Chemistry within the School of Science and Health. A Chairperson will be selected according School of Science and Health policy. Release time, six hours per semester, will be provided to allow the chair to complete administrative functions related to financial management, faculty selection and evaluation, course development and other such responsibilities assigned to chairpersons in the School. The salary and benefits component of the budget includes the hourly salary needed to accomplish this. The Department of Chemistry will house the Bachelor of Science Degree in Chemistry and the Bachelor of Science in Chemistry and Physics Education.

Current College, School, and Departmental procedures provide for departmental involvement in and exercise of reasonable control over faculty selection and promotion, course development, assignment of teaching responsibilities, grading standards, and similar intradepartmental activities.

Existing outcome assessment requirements of the College will assure that the program completes periodic self-evaluations.

Additional costs to meet this accreditation standard are included in the budget section of this proposal under salaries and benefits.

Ib. Financial Support: The following factors are listed under this requirement:

- A chemistry faculty of sufficient size and scientific breadth to offer the variety and level of courses specified

The current faculty have the scientific breadth to offer the specified courses. An additional 1.40 FTE faculty positions are requested the first year of the program and 2.60 FTE positions thereafter. The associated cost is included in the budget proposal.

- Enough nonacademic personnel for secretarial services, stockroom administration, and instrument and equipment maintenance

An additional 0.50 FTE contract staff are requested the first year of the program and 0.75 FTE thereafter requested to meet this requirement. Cost for these personnel is included in the proposed budget.

- Laboratories and classrooms that meet current safety standards

Existing classrooms and laboratories will be used for this program and meet safety standards. No additional funds are needed to meet this requirement.

- Expendable supplies and capital equipment acquisitions and replacements as required for high-quality laboratory instruction.

In order to meet all educational standards set forth by the American Chemical Society, the Department requires:

1 Nuclear Magnetic Resonance Spectrometer- cost is approximately \$225,000

1 Atomic Absorption Spectrometer- cost is approximately \$25,000.

1 Liquid Chromatography - cost is approximately \$25,000.

The School is currently seeking grants and donations to cover these costs. The costs of expendable lab supplies is included in the budget under current expenses. The budget also includes \$12,000 for service contracts to maintain the equipment.

- Chemical computation

The chemistry laboratories will need five (5) desktop computers and attachments to the spectrometers. Costs for these are included in the budget for the first year of the program, with replacement costs included in the fourth year of the program budget.

- Adequate waste handling and repair

Current facilities and budget provide for waste handling and repair. The increased laboratory usage will require an additional \$1,000 to cover additional waste disposal and repair of related equipment.

- A suitable amount and variety of library and learning resources, including chemical research periodicals, reference materials, and database searching facilities
This is addressed specifically in the Library section of this proposal. The proposed budget included a request for \$2,000 for the first year of the program and ongoing expenses of \$1,000 to maintain the library requirements of the program.

- Student and faculty research
The budget includes funds for equipment and supplies needed for student and faculty research.
- Faculty and student travel to professional meetings

A request for \$1,500 per year to support this requirement is included in the budget.

- Opportunities for scholarly growth of faculty, including sabbatical leaves

Faculty in the proposed program will participate in the present system of faculty development and sabbatical leaves. An additional \$1,000 is requested for professional development activities. The proposal includes funding for hourly faculty to enable each faculty member in this program to have three hours release time per semester for research. This will reduce the teaching load of chemistry faculty to 12 credit hours rather than the current 15 credit hours per semester.

Ic. Curriculum Requirements:

- “A minimum of 28 semester credit hours of basic instruction with comparable emphasis on the areas of analytical chemistry, inorganic chemistry, organic chemistry, and calculus based physical chemistry. Biochemistry must also be a part of the undergraduate curriculum for chemistry degree students.” This standard is met by the following required classes:

CORE

CHEM 1210 Principles of Chemistry I	5	
CHEM 1220 Principles of Chemistry II		5
CHEM 2310 Organic Chemistry I		4
CHEM 2330 Organic Chemistry I Lab		1
CHEM 2320 Organic Chemistry II		4
CHEM 2340 Organic Chemistry II Lab		1
CHEM 3210 Analytical Chemistry		4
CHEM 3600 Biological Chemistry		3
CHEM 3610 Biological Chemistry Lab		<u>1</u>
CORE TOTAL		28

ADVANCED

CHEM 3060 Physical Chemistry I		4
CHEM 3070 Physical Chemistry II		4
CHEM 3100 Inorganic Chemistry		4
CHEM 3110 Inorganic Chemistry Lab		1
CHEM 3710 Physical Chemistry Lab		2
CHEM 4000 Instrumental Analysis		<u>2</u>
ADVANCED TOTAL		13
CORE AND ADVANCED TOTAL		45

- The 28 semester credit hours of study shall include the equivalent of seven semester credit hours (300-350 contact hours) of laboratory instruction distributed, not necessarily in equal proportions, among synthesis and characterization of inorganic and organic compounds, chemical and instrumental methods of analysis, and experimental physical chemistry. In addition to the core curriculum, the faculty of an approved program should teach a minimum of two advanced courses on a regular cycle. ... Six semester hours of advanced courses must include sufficient laboratory work to bring the total number of laboratory hours to 500.”

The CORE courses are 28 semester hours that have 7 semester credit hours of laboratory. CHEM 1210 and CHEM 1220 each have 1 semester credit hour of laboratory credit. All ADVANCED courses will be taught on a regular basis. The ADVANCED courses bring the total number of laboratory hours to 510.

- “Calculus is required for physical chemistry”

The calculus series MATH 1210 Calculus I, MATH 1220 Calculus II, and MATH 2210 Calculus III are prerequisites for CHEM 3060 Physical Chemistry I and CHEM 3070 Physical Chemistry II.

- Work equivalent to at least a one-year, laboratory-based course in physics, preferably at a level involving calculus, is required and should precede the basic course in physical chemistry and most advanced work in chemistry.

The physics courses PHYS 2210, PHYS 221L, PHYS 2220 and PHYS 222L are calculus based and are prerequisites for CHEM 3060 Physical Chemistry I and CHEM 3070 Physical Chemistry II. In addition PHYS 3030 and PHYS 303L are taken at the same time as CHEM 3060 Physical Chemistry I.

- Wherever possible, core courses should include examples of materials chemistry, polymer chemistry, and applied chemistry, particularly in cases where these areas are not covered in advanced courses. Throughout the core, attention should be given to chemical safety, to the systematic use of the chemical literature, and to computer applications.

The core courses and laboratory courses are designed to cover these topics.

- Laboratory work in chemistry should give students hands-on experience with chemistry and the self-confidence and competence to:

*keep legible and complete experimental records;

*synthesize and characterize inorganic and organic compounds;

*perform accurate and precise quantitative measurements;

*use and understand modern instruments, particularly NMR, IR, and UV-vis spectrometers, gas and liquid chromatographs, electrochemical instruments, and laboratory computers;

*interpret experimental results and draw reasonable conclusions;

- *analyze data statistically and assess reliability of results;
- *anticipate, recognize, and respond properly to hazards of chemical manipulations;
- *design experiments;
- *plan and execute experiments through the use of the literature; and
- *communicate effectively through oral and written reports.

All laboratories are designed to meet these requirements.

7. ACS Standard: *Related Studies*. Well-prepared students should emerge from a program in chemistry with:

- *a firm foundation in the fundamentals and applications of calculus, including proficiency with partial derivatives and some knowledge of differential equations;
- *an understanding of the basic principles of linear algebra;
- *practical knowledge of statistics with applications to validation of data and design of experiments;
- *experience with computers, including an ability to use spreadsheets, numerical and nonnumerical algorithms, simulations, data acquisition, and use of databases for information handling and retrieval; and
- *a good foundation in physics.

The classes MATH 1110, MATH 1210, MATH 2010, MATH 2270, MATH 2280, MATH 3400, CHEM 3060, and CHEM 3070 meet the first two requirements.

CHEM 3210, CHEM 4000, and CHEM 3710 meet the second two requirements.

PHYS 2210, PHYS 221L, PHYS 2220, PHYS 222L, PHYS 3030, and PHYS 303L meet the last requirement.

8. ACS Standard: *Communication Skills*. Effective written and oral communication skills are no less essential to the well-trained scientist than to the humanist. Speech and English composition courses alone are rarely enough to attain sufficient skill. Frequent exercises in writing and speaking should be a part of the chemistry curriculum and should be critically evaluated by the chemistry faculty. Ideally, every course should be an exercise in expressing ideas clearly. Seminars, progress reports, term papers, laboratory reports, problem sets, and examinations all should be evaluated for clarity as well as accuracy.

In addition to general education requirements in English, this requirement is met by formal lab reports required in upper division laboratory classes such as CHEM 3610, CHEM 3110 and CHEM 3710.

MEMORANDUM

April 11, 2001

TO: State Board of Regents

FROM: Cecelia H. Foxley

SUBJECT: Utah Valley State College Request to Offer a Bachelor of Science Degree in Mathematics -- Non-Action Item

Issue

Utah Valley State College officials request approval to offer a Bachelor of Science Degree in Mathematics, effective Fall 2001.

Background

As described in preceding sections, the proposal for a Bachelor Degree in Science in Mathematics is part of UVSC's plan to develop a coherent program in the sciences. This degree program is designed to prepare graduates for employment in today's technological workplace and for graduate study in mathematics. Course requirements are intended to give exposure to a wide range of mathematics courses and to ensure that students achieve depth in at least one mathematics area. In addition, UVSC students in allied disciplines including computer science and physical and biological sciences, will benefit from a variety of upper-division mathematics courses that will broaden their skills and give them a competitive edge in the job market.

A career in mathematics, except for teaching at the secondary level, generally requires a graduate degree. However, graduates with a Bachelor's Degree in Mathematics and a strong background in a related discipline can expect good employment opportunities. Mathematicians are excellent candidates for jobs that require good reasoning ability and communication skills, and with appropriate certification may teach, work in research and development laboratories, or become computer programmers or systems analysts.

The UVSC proposed program is modeled after similar BS programs at USHE universities, and programs at a number of out-of-state universities. Information on evolving mathematics undergraduate curriculum from the Mathematical Association of America (MAA) were reviewed and influenced the proposed program's development. No external consultants were involved in the development of the proposed program, and professional accreditation will not be sought.

UVSC officials expect about 12 majors in the first year the proposed program is available, and predict that the number will soon double and stabilize at approximately 27 majors in subsequent years. In a survey of 400 students in advanced lower division courses, 69 said they planned to complete a Bachelor's Degree in Mathematics, and 45 said if UVSC offered a Bachelor's Degree in Mathematics, they would be interested in enrolling as soon as the program started.

There are already seventeen faculty who teach mathematics courses at UVSC, and 8 are doctorally-prepared. Two additional Ph.D. faculty in mathematics will be hired this spring. The proposal indicates that another faculty member will be added in the second year of the Program.

During its first year, UVSC officials expect this program to require new expenditures of about \$56,000. In subsequent years, that increase would double to approximately \$103,000. It is anticipated that these expenses can be covered with enrollment growth funding.

Policy Issues

The issues raised by this program proposal are addressed in the Introduction memorandum of Tab G.

Options Considered

After the Regents have reviewed the proposal from Utah Valley State College to offer a Bachelor of Science Degree in Mathematics, they may raise questions or request additional information in anticipation of reaching a decision on the request at the June Board meeting. If satisfied that questions have been answered, the Regents may chose to advance the request to action status and approve or deny the proposal to offer a Bachelor of Science Degree in Mathematics.

Commissioner's Recommendation

It is the recommendation of the Commissioner that the Regents review Utah Valley State College's request to offer a Bachelor of Science Degree in Mathematics, address the specific and broad issues outlined in the Introduction memorandum, and request additional information necessary to reach a decision on the proposal at the June meeting of the Board. However, if satisfied that all major issues have been resolved, the Board may choose to make the proposal an action item and either approve or deny the request at the April Board meeting.

Cecelia H. Foxley, Commissioner

ACADEMIC AND APPLIED TECHNOLOGY PROGRAM COMMITTEE

Non-Action Item

Request to Offer a Bachelor of Science Degree in Mathematics

Utah Valley State College

Prepared for
Cecelia H. Foxley
by
Michael A. Petersen
and
Phyllis C. Safman

April 11, 2001

SECTION I The Request

Utah Valley State College officials request approval to offer a Bachelor of Science degree in Mathematics, effective Fall 2001.

SECTION II Program Description

Complete program description. In addition to the current description for the Associate of Science/Arts Degree with an emphasis in mathematics, the following formal program description will appear in the College catalog and/or other publications about the program:

Students in Mathematics may receive:

- Associate in Science/Arts with a mathematics emphasis
- Bachelor of Science in Mathematics

Purpose of degree. The proposed Bachelor of Science Degree in Mathematics is designed to prepare graduates for employment in today's technological workplace and for graduate study in mathematics. The course requirements for the proposed program are intended to give students an exposure to a wide range of mathematics courses and to ensure that students achieve depth in at least one area of mathematics. In addition, UVSC students in allied disciplines such as computer science, engineering, and the physical sciences will benefit from a variety of upper-division mathematics courses that will broaden their skills and give them a competitive edge in the job market.

Admission Requirements. The student should meet with a Department of Mathematics Advisor and declare an intent to major in mathematics. The Department of Mathematics requires the completion of a minimum of 30 semester hours of college credit and a cumulative GPA of at least 2.4 in MATH 1210 and MATH 1220, with neither course grade lower than C, for admission to the mathematics program.

Student advisement. Students in the Bachelor of Science Degree in Mathematics program will meet with a Department of Mathematics advisor to declare their intent to major in mathematics prior to enrollment in baccalaureate-level courses. The advisor will provide students with a suggested curriculum plan and discuss any variations in the plan based on the students' prior course work. The Department recommends that students see the advisor a minimum of once a semester to review their progress in the proposed program. If students have particular employment goals, the advisor will suggest strengths students might develop to enhance their background. If students are planning to attend graduate school to pursue an advanced degree in a specific area of mathematics, the advisor will suggest the appropriate course work to prepare the student for that specific field.

Graduation Requirements: To fulfill the requirements for a Baccalaureate Degree (B.S.) in Mathematics, students must achieve a minimum overall GPA of 2.0. For all attempted work in mathematics courses numbered 1210 and above, a minimum GPA of 2.4 is required, with no course grade lower than C-. Also, students must complete:

- 1) A minimum of 120 semester hours with at least 40 credit hours in upper-division courses. A minimum of 30 credit hours must be earned at UVSC, with at least 10 credit hours earned at UVSC in the last 45 credit hours.
- 2) PHYS 2210, PHYS 221L, PHYS 2220, and PHYS 222L.
- 3) The core and distribution requirements listed under General Education Requirements for the Associate of Science/Arts Degree.
- 4) The following required mathematics courses:

REQUIRED MATHEMATICS COURSES (28 credits)

Course Number	Course Title	Credit Hours
MATH 1210	Calculus I	5
MATH 1220	Calculus II	5
MATH 2210	Calculus III	3
MATH 2270	Linear Algebra	3
MATH 2280	Ordinary Differential Equations	3
MATH 3200	Foundations of Analysis	3
MATH 3300	Foundations of Abstract Algebra	3
MATH 4210	Advanced Calculus I	3

- 5) At least six courses (18 credits) chosen from the following courses so that at least one year-long sequence of MATH 4210, 4220 or MATH 4310, 4320 or MATH 4610, 4620 is included in the total 46 mathematics credit hours.

UPPER-DIVISION MATHEMATICS ELECTIVES (18 credits)

Course Number	Course Title	Credit Hours
MATH 3210	Complex Variables	3
MATH 3400 (MATH 2290)	Partial Differential Equations	3
MATH 4000	Introduction to Probability	3
MATH 4220	Advanced Calculus II	3
MATH 4310	Intro. to Modern Algebra I	3
MATH 4320	Intro. to Modern Algebra II	3
MATH 4330	Theory of Linear Algebra	3
MATH 4340	Introduction to Number Theory	3
MATH 4500	Introduction to Topology	3
MATH 4610	Intro. to Numerical Analysis I	3
MATH 4620	Intro. to Numerical Analysis II	3
MATH 490R	Topics in Mathematics	2-3

(See Appendix A for Program Curriculum and Appendix B for Program Schedule.)

Students planning to do graduate work in mathematics should take both year-long sequences, MATH 4210, 4220 and MATH 4310, 4320, and acquire a reading knowledge of at least one foreign language chosen from French, German, or Russian.

Justification for number of credits. The proposed program of 120 semester hours is within the Regents' guidelines.

External review and accreditation. No external consultants were involved in the development of the proposed program, and no special professional accreditation will be sought.

The UVSC proposed program was modeled on mathematics programs at the University of Utah, Utah State University, Southern Utah University, Weber State University, University of Maryland, University of Colorado, University of California (Berkeley), Florida Atlantic University, and New Mexico State University. The *Occupational Outlook Handbook, 2000-2001*, published by the U.S. Department of Labor's Bureau of Labor Statistics, was carefully reviewed particularly the sections devoted to the occupations of mathematicians, statisticians, computer programmers, and operations

research analysts. The *Handbook* gives useful information regarding the academic strengths students need to improve their chances of eventual employment. This information informed planning decisions on program content and advisement.

Finally, the Mathematical Association of America (MAA) provides many sources of information on evolving mathematics undergraduate curriculum, including guidelines from the MAA's Committee on Undergraduate Programs in Mathematics. These sources were reviewed and influenced the proposed program's development.

Projected enrollment. The following table presents projected student headcounts, student FTE enrollments, and mean student FTE to faculty FTE ratios for upper-division mathematics courses for the first five years of the proposed program.

YEAR	STUDENT HEADCOUNT	STUDENT FTE ENROLLMENT	MEAN STUDENT FTE to FACULTY FTE RATIO
2001-02	20	12.50	25.00
2002-03	40	24.00	24.00
2003-04	44	26.20	23.82
2004-05	48	27.00	24.55
2005-06	48	27.00	24.55

Expansion of existing program. The following table indicates headcount enrollment in mathematics courses offered in the UVSC two-year program for the last three years.

COURSE	SPR 98	SUM 98	FALL 98	SPR 99	SUM 99	FALL 99	SPR 00	SUM 00	FALL 00	Total
MATH 1010	1162	318	1345	1036	350	1414	1101	386	1420	8532
MATH 1030			11	8	0	11	11	0	24	65
MATH 1040			8	20	0	21	34	0	40	123
MATH 1050	869	311	1009	1002	331	1072	1133	450	1099	7276
MATH 1060	108	43	120	132	33	151	145	37	138	907
MATH 1065	0	0	10	6	0	13	0	0	7	36
MATH 1100	117	47	101	146	82	153	176	95	192	1109
MATH 1210	76	36	110	68	51	106	66	36	101	650
MATH 121H	18	0	6	15	0	8	20	0	0	67
MATH 1220	55	17	46	67	14	49	65	21	52	386

MATH 122H	5	0	5	0	0	11	0	0	6	27
MATH 2010	91	0	104	67	11	86	67	20	68	514
MATH 2020	39	23	30	72	0	35	75	15	25	314
MATH 2210	20	0	12	15	0	21	10	0	15	93
MATH 2230	131	73	99	115	57	108	81	57	94	815
MATH 2270	0	0	14	0	0	8	7	0	21	50
MATH 2280	9	0	7	14	0	0	10	0	0	40
Total	2700	868	3037	2783	929	3267	3001	1117	3302	

Annual FTE's for students declaring mathematics as their emphasis in the Associate Degree program for the past five years is shown in the following table.

ACADEMIC YEAR	FTE
95-96	702.9
96-97	727.38
97-98	660.87
98-99	697.1
99-00	870.4

Faculty. Two doctorally-prepared mathematics faculty are being hired this spring. The following table shows the number of additional faculty that would be required in each of the first five years in the proposed program. (See Appendix C for Faculty and their qualifications.)

ACADEMIC YEAR	FACULTY FTE
2001-2002	0.5
2002-2003	1.0
2003-2004	1.1
2004-2005	1.1
2005-2006	1.1

Faculty development to support the program. Faculty are eligible for faculty development funds. Members of the UVSC Department of Mathematics attend sectional meetings of the Mathematical Association of America and national and local meetings of the American Mathematical Association of Two-Year Colleges. These meetings provide many opportunities for discussion about mathematical pedagogy and intellectual enrichment. Also, all of the Department of Mathematics faculty have Internet access, which provides links to other colleges and universities, where news of current trends in mathematics are reported.

Staff. Hourly staff would be needed to support a mathematics computer laboratory, and additional clerical help would be needed. In the beginning of the second year of the proposed program, a half-time academic advisor would be needed in addition to the Department's current full-time advisor.

Library. The UVSC Library has been using the Mathematical Association of America guidelines for library resources to support undergraduate education to upgrade the Library's mathematics and mathematics education holdings. The Library has been purchasing books from the MAA list, Library Recommendations for Undergraduate Mathematics, and has been improving its collection of mathematical journals. The Library currently holds 34 mathematical journals, including all the journals of the American Mathematical Society. In addition, UVSC is a member of the Utah Academic Library Consortium, and this membership provides UVSC faculty, staff, and students with library privileges at all Utah institutions of higher learning.

The proposed budget for library resources to support the proposed program includes \$2,000 for the first year and \$1,500 each year thereafter.

Learning resources. Two new computers would be needed; one computer is for a new faculty member, and the other for a new half-time mathematics advisor. The cost of these two computers is included in the "Equipment" portion of the "Budget" section.

During the 2001-2002 school year, the Department of Mathematics will vacate the computer laboratory in the Science Building and move its computer-based classes to a computer laboratory in the Administration Building. The "Budget" section below includes cost factors regarding the move.

A year-long course sequence on numerical analysis (MATH 4610 and MATH 4620) would be offered for the first time in the second year of the proposed program. These courses would be taught in the newly acquired mathematics computer lab, which would be offered as an open laboratory for students when classes are not being conducted. Future software on the laboratory computers would require periodic upgrades that would also be provided to the instructor.

SECTION III Need

Program necessity. There is a great need nationwide for workers who possess technical skills. In fact, U.S. immigration laws have been eased recently because colleges and universities in the United States are not producing enough workers with the sophisticated technical skills needed in the modern American workplace. In Utah, Governor Leavitt presented the USHE with the challenge to double the number of graduates in engineering and computer science in the next five years and to triple that number in eight years. Mathematics is the foundation for many technical disciplines, including computer science, engineering, the physical sciences, and economics. A mathematics program is an essential academic component of any school or college of science. At UVSC the proposed program would provide support for all science programs in the School of Science and Health, and it would help bring academic balance to the School.

Career Opportunities. A career in mathematics, except for teaching at the secondary level, generally requires a graduate degree. However, graduates with a Bachelor's Degree in Mathematics and a strong background in a related discipline, such as computer science, statistics, or engineering, can expect good employment opportunities. Mathematicians are called upon to do many different types of jobs that require good reasoning ability and communication skills. Mathematicians might teach, work in research and development laboratories, become computer programmers or systems analysts, or they might decipher encryption systems. Each new technological breakthrough reveals exciting new applications of mathematics, giving rise to an ever-increasing array of employment opportunities for mathematicians.

Graduates with a Bachelor's Degree in Mathematics and a strong background in a related field, such as computer science, statistics, engineering, or a physical science, are sought for employment in a wide variety of settings including medicine and pharmaceuticals, business, scientific research and development, communications, and military security. Mathematicians possess problem-solving abilities and analytical skills that are required for most technical work. The study of advanced mathematics promotes independent and creative thinking, and a mental flexibility that is highly valued by employers.

Labor market demand. The following local and state information comes from the Utah Labor Demand and Supply tables that are provided by the Utah Department of Workforce Services. The Mountainlands Region consists of Summit, Utah, and Wasatch Counties. The national information comes from the *Occupational Outlook Handbook, 2000-2001*, provided by the U. S. Department of Labor Bureau of Labor Statistics.

Employment data for mathematics graduates are challenging to find because most often those trained in the field of mathematics find jobs that do not have the job title "Mathematician." Job titles for mathematics graduates may include computer programmer, software designer, software engineer, systems analyst, systems engineer, actuary, statistician, operations research analyst, cryptographer, and

cryptanalyst.

Utah. Table 3 of the Utah Labor Demand and Supply tables, entitled *Utah-Statewide Labor Demand and Supply by Occupation, 1998-2003*, does not list the occupation “Mathematician.” However, Table 3 lists the occupations referred to in the above paragraph, computer programmer and computer systems analyst. Table 3 shows a composite job prospect grade of B for both occupations. (The top 15 percent of the occupations shown in the table is assigned an A, the next 30 percent a B, and the remaining 55 percent a C.) Table 3 also shows an average (hourly) wage of \$25.10 for computer programmers and an average (hourly) wage of \$21.95 for computer systems analysts. Average wage is an estimate of the wage paid to experienced workers.

Mountainlands Region. Table 18 of the Utah Labor Demand and Supply tables, entitled *Mountainland Service Delivery Area Labor Demand by Occupation, 1998-2003*, also does not list the occupation “Mathematician.” However, Table 18 shows a composite job prospect grade of A for computer programmers and a composite job prospect grade of B for computer systems analysts. The average (hourly) wage for computer programmers in the Mountainlands region is \$23.45, and the average (hourly) wage for computer systems analysts is \$20.03.

Nationwide. Graduates with a Bachelor’s Degree in Mathematics who are trained in a related discipline, such as computer science, statistics, or engineering, can expect good employment opportunities. According to a 1999 survey of the National Association of Colleges and Employers, starting salary offers for mathematics graduates with a bachelor’s degree averaged about \$37,300 a year. In early 1999 the average annual salary for mathematicians employed by the Federal Government in supervisory, non-supervisory, and managerial positions was \$69,000; for mathematical statisticians, \$69,000; and for cryptanalysts, \$61,000.

Student demand. Student enrollment in mathematics courses at UVSC has increased over the last three years. In Fall 1998 the total enrollment in mathematics courses was 3,037; in Fall 1999 it was 3,267; and in Fall 2000 it was 3,302.

A student survey was conducted in UVSC mathematics classes to determine student interest in a UVSC mathematics degree. The surveys were given to students in trigonometry, calculus, college algebra-based statistics, linear algebra, and differential equations classes. Of the 400 students who responded, 69 said they planned to complete a Bachelor’s Degree in Mathematics, and 45 indicated that if UVSC offered a Bachelor’s Degree in Mathematics, they would be interested in enrolling as soon as the program started. The written comments on the surveys expressed three dominant themes: having a mathematics degree is important to the quality of UVSC as an academic institution; the students like being at UVSC and want to be able to finish their mathematics program at UVSC rather than having to transfer to another school; and, science and engineering students want UVSC to offer upper-division mathematics courses that will transfer to other schools.

Similar programs. Similar programs are offered at the University of Utah, Utah State University, Weber State University, and Southern Utah University. In fact, as noted above, these particular programs were used as models for the proposed program. In general, undergraduate mathematics programs are quite similar because there are certain basics all mathematics graduates should know, especially if they are planning to attend graduate school in mathematics. Also, the proposed program is intended to be similar to the other programs so that students can easily transfer from one institution to another. Course numbering, titles, and content for those in the proposed program were designed to match those of the other four schools.

The UVSC Department of Mathematics baccalaureate program would be within easy reach of a large and growing student body, many of whom would need the technical training that the proposed program would provide. The Department is staffed with experienced mathematics teachers, and about half of the Department's faculty have had previous work experience in high-tech positions. Thus, the Department is ideally situated and qualified to provide the mathematical foundation students need to enter today's demanding workplace.

Collaboration with and impact on other USHE institutions. The Mathematics Departments at the University of Utah, Utah State University, Weber State University, and Southern Utah University have provided reviews and suggestions regarding the details of the program.

Given the population base in Utah County, it is not anticipated that a Bachelor of Science Degree in Mathematics at UVSC would impact similar programs across the State. However, it is expected that such a program would produce a number of candidates for graduate programs at other institutions.

Benefits. Graduates of the proposed program would have analytical and problem-solving skills that are needed by employers in technology-based firms. Therefore, the proposed program would assist USHE to meet its charge to produce more graduates who would be able to handle technical jobs that will be available in the future. Also, UVSC students in allied disciplines such as computer science, engineering, and the physical sciences would be able to take a variety of upper-division mathematics courses as electives, thus enriching their mathematical background and improving their employment prospects.

Consistency with Institutional Mission. A baccalaureate degree in mathematics is suited to the mission of Utah Valley State College. The UVSC Mission Statement reads, in part, "Utah Valley State College is dedicated to providing a broad range of quality academic, vocational, technical, cultural, and social opportunities and experiences designed to encourage and assist students in attaining their goals and realizing their talents and potential, personally and professionally. The College is committed to meeting student and community needs for occupational training. . ."

SECTION IV

Program and Student Assessment

Program assessment. The goals of the proposed program are to provide students with the appropriate skills to be eligible for employment in the high-tech fields and to prepare future graduates in mathematics for post-baccalaureate education.

The Department currently assesses the effectiveness of its Associate Degree program by performing exit interviews and follow-up interviews. The practice will be applied to graduates of the proposed mathematics program.

Expected Standards of Performance. Graduates will have a solid grasp of calculus and introductory linear algebra and differential equations. They will have been exposed to proof-based courses and will have had an in-depth experience in either advanced calculus, algebra, or numerical analysis. Also, graduates will have seen a broad range of mathematics courses, some depending on one another, and thus will achieve an understanding of how subject areas within the discipline of mathematics are connected. These competencies were suggested in a report prepared by the Mathematical Association of America's Committee on Undergraduate Programs in Mathematics.

Student assessment. Tests and/or quizzes and homework would be used as formative assessment measures. Comprehensive final examinations in each course, as well as exit and follow-up interviews, would be used as summative assessment measures.

A faculty assessment representative would conduct an exit interview with each graduate. During the interviews, the representative would make arrangements for future follow-up with graduates by e-mail or telephone. The faculty assessment representative would discuss with graduates their plans for the immediate future. A year after the exit interview, graduates would be contacted and asked about any schooling or employment that they have had since graduation and about their perception of the extent to which their mathematical studies at UVSC prepared them for these latest endeavors.

Continued quality improvement. Program and student assessment data would be discussed annually at a full department meeting to determine if revisions are necessary to strengthen the proposed program.

SECTION V
Finance

Budget: The table below summarizes the projected budget. All table entries are dollar amounts. The Salaries and Wages column includes salaries for full-time, adjunct personnel, and hourly staff.

ACADEMIC YEAR	SALARIES AND WAGES	BENEFITS	CURRENT EXPENSE	LIBRARY	EQUIPMENT	TRAVEL	TOTAL
2001-2002	27,500	8,960	15,000	2,000	2,500	1,000	56,960
2002-2003	63,159	23,237	3,000	1,500	2,500	1,000	94,396
2003-2004	66,890	24,294	5,000	1,500	0	1,000	98,684
2004-2005	69,565	25,266	2,500	1,500	0	1,000	99,831
2005-2006	72,348	26,277	2,500	1,500	0	1,000	103,625

Funding sources. The proposed program would be funded through enrollment growth and additional tuition revenues.

Reallocation. Not applicable.

Impact on existing budgets. Not applicable.

Appendix A

PROGRAM CURRICULUM

New courses to be added in the next five years. *List all new courses to be developed in the next five years by prefix, number, title, and credit hours.*

Course Number	Course Title	Credit Hours
MATH 3210	Complex Variables	3
MATH 4210	Advanced Calculus I	3
MATH 4220	Advanced Calculus II	3
MATH 4310	Intro. to Modern Algebra I	3
MATH 4320	Intro. to Modern Algebra II	3
MATH 4330	Theory of Linear Algebra	3
MATH 4340	Introduction to Number Theory	3
MATH 4500	Introduction to Topology	3
MATH 4610	Intro. to Numerical Analysis I	3
MATH 4620	Intro. to Numerical Analysis II	3
MATH 490R	Topics in Mathematics	2-3

These courses would be gradually developed and offered according to the following schedule:

Academic Year	Mathematics Courses to Be Developed
2001-2002	MATH 3210, MATH 4210, MATH 4220
2002-2003	MATH 4310, MATH 4320, MATH 4610, MATH 4620
2003-2004	MATH 4500, MATH 4330
2004-2005	MATH 4340, MATH 490R

All program courses.

(COURSE DESCRIPTIONS WILL FOLLOW THE TABLES GIVEN BELOW.)

GENERAL EDUCATION COURSES (35 credits)

Course Number	Course Title	Credit Hours
PE-S 1300	Fitness for Life	1
ENGL 1010	Introduction to Writing	3
ENGL 2020 *	Intermediate Writing: Science and Technology	3
PHYS 2210	Physics for Scientists and Engineers I	3
PHYS 221L	Physics for Scientists and Engineers I Lab	1
PHYS 2220	Physics for Scientists and Engineers II	3
PHYS 222L	Physics for Scientists and Engineers II Lab	1
PHIL 2050	Ethics and Values	3
HLTH 1100	Personal Health and Wellness	2
Social/Behavioral Science Course		3
American Institutions Course		3
Biology Course		3
Humanities Course		3
Fine Arts Course		3

* ENGL 2020 is recommended.

REQUIRED MATHEMATICS COURSES (28 credits)

Course Number	Course Title	Credit Hours
MATH 1210	Calculus I	5
MATH 1220	Calculus II	5
MATH 2210	Calculus III	3
MATH 2270	Linear Algebra	3
MATH 2280	Ordinary Differential Equations	3
MATH 3200	Foundations of Analysis	3
MATH 3300	Foundations of Abstract Algebra	3
MATH 4210	Advanced Calculus I	3

UPPER-DIVISION MATHEMATICS ELECTIVES (18 credits)

Course Number	Course Title	Credit Hours
MATH 3210	Complex Variables	3
MATH 3400 (MATH 2290)	Partial Differential Equations	3
MATH 4000	Introduction to Probability	3
MATH 4220	Advanced Calculus II	3
MATH 4310	Intro. to Modern Algebra I	3
MATH 4320	Intro. to Modern Algebra II	3
MATH 4330	Theory of Linear Algebra	3
MATH 4340	Introduction to Number Theory	3
MATH 4500	Introduction to Topology	3
MATH 4610	Intro. to Numerical Analysis I	3
MATH 4620	Intro. to Numerical Analysis II	3
MATH 490R	Topics in Mathematics	2-3

ELECTIVES (39 credits)

COURSE DESCRIPTIONS

GENERAL EDUCATION COURSES

PE-S 1300 Fitness for Life

1:5:1.5

Required for AA/AS degree. Provides an individualized approach to physical fitness. Teaches principles of cardiovascular endurance, weight control, strength, and ability. Students apply learning by writing and engaging in a personalized fitness program.

ENGL 1010 Introduction to Writing

3:3:0

Prerequisite: COMPASS Writing/DRP scores of 80+/77+, or ACT English/ACT Reading scores of 19+/19+, or completion of ENGH 0990 and RDG 1170 each with a grade of C- or higher, or challenge by essay assessment for a \$20 fee.

Emphasizes, in writing intensive workshops, rhetorical knowledge and skills. Teaches critical reading, writing, and thinking skills. Explores writing situations as complex and recursive processes. Enhances basic literacies, addressing both rhetorical problems and conventions of language use (within the context of Standard Written English). Three major essays with graded revision(s), microthemes, in-class writing and collaboration, portfolios, and journals.

ENGL 2020 Intermediate Writing: Science and Technology

3:3:0

Prerequisite: ENGL 1010

Explores public issues involving science and technology. Invokes problems for exploration. Emphasizes the production of well-reasoned and carefully researched written arguments that inquire, interrogate, and negotiate meanings across a diverse array of positions and in a variety of contexts, including writing about science and technology issues, and technical and/or professional documents. Includes at least one major research project (possible more), annotated bibliography and/or appendices, oral presentations (individual and/or group), portfolios, in-class writing, and collaboration. May include basic requirements for professional and technical documents (memos, letters, reports, and more).

PHIL 2050 Ethics and Values

3:3:0

Prerequisite: ENGL 1010

A demanding transfer course, designed to challenge students to (1) explore and clarify their values; (2) critically read works of philosophy, literature, religion, and history toward understanding the basis of

their ethical views; and (3) read, study, research, discuss, and write about difficult ethical issues. Focuses on issues of good vs. evil, justice vs. injustice, equality vs. inequality, and the necessity of defining and examining happiness of values. This confrontation with major philosophical concepts and systems is intended to engage students in serious reflection on issues of ethics and values as they relate to the students' own lives.

HLTH 1100 Personal Health & Wellness **2:2:0**

Examines the basic health “wellness” concept of good health through healthy living. Develops a greater appreciation for bodies and understanding of requirements to maintain or achieve good physical, mental, emotional, social, and spiritual health. Includes lecture, discussion groups, guest lecturers, media, and role-playing.

PHYS 2210 Physics for Scientists and Engineers I **3:3:0**

Prerequisite: MATH 1050 and 1060

Pre- or Co-requisite: MATH 1210

Corequisite: PHYS 221L

A calculus based class for science and engineering majors. A theoretical and applied course covering principles of mechanics, fluids, and thermal physics.

PHYS 221L Physics for Scientists and Engineers I Lab **1:0:3**

Designed to accompany PHYS 2210. Provides firsthand experience with laws of mechanics, thermal physics, and scientific data analysis. Includes one hour of recitation.

PHYS 2220 Physics for Scientists and Engineers II **3:3:0**

Prerequisite: PHYS 2210

Corequisite: PHYS 222L

For science and engineering majors. A continuation of PHYS 2210. Covers electrostatics, electric currents, magnetism, and solid state electronics.

PHYS 221L Physics for Scientists and Engineers II Lab **1:0:3**

Designed to accompany PHYS 2220. Provides firsthand experience with laws of electricity, magnetism, and scientific data analysis. Includes one hour of recitation.

REQUIRED MATHEMATICS COURSES**MATH 1210 Calculus I** **5:5:0**

Prerequisite: One of the following: MATH 1050 and 1060, each with a grade of C- or better; MATH 1065 with a grade of C- or better; recommended placement by the COMPASS test; or instructor approval

Includes limits and continuity, differentiation, applications of differentiation, integration, applications of integration, derivatives of the exponential functions, logarithmic functions, inverse trigonometric functions, and hyperbolic functions, and related integrals. Prerequisite for calculus-based sciences.

MATH 1220 Calculus II **5:5:0**

Prerequisite: MATH 1210 with a grade of C- or better

Includes arc length, area of a surface of revolution, moments and centers of mass, integration techniques, sequences and series, parametrization of curves, polar coordinates, vectors in 3-space, quadric surfaces, and cylindrical and spherical coordinates. Prerequisite for calculus-based sciences.

MATH 2210 Calculus III **3:3:0**

Prerequisite: MATH 1220 with a grade of C- or better

Includes partial derivatives, gradients, Lagrange multipliers, multiple integrals, line integrals, Green's Theorem, surface integrals, the Divergence Theorem, and Stokes' Theorem.

MATH 2270 Linear Algebra **3:3:0**

Prerequisite: MATH 1220 with a grade of C- or better

Includes matrices and systems of equations, determinants, vector spaces, linear transformations, orthogonality, and eigenvalues and eigenvectors.

MATH 2280 Ordinary Differential Equations **3:3:0**

Prerequisite: MATH 2210 with a grade of C- or better

Includes separable equations, linear differential equations, differential operators and annihilators, variation of parameters, power series solutions of differential equations, Laplace transforms, systems of linear differential equations, and numerical methods.

MATH 3200 Foundations of Analysis **3:3:0**

Prerequisite: MATH 2210, MATH 2270, and MATH 2280, each with a grade of C- or better

Introduces the construction of rigorous proofs of mathematical claims in the context of beginning analysis.

MATH 3300 Foundations of Abstract Algebra **3:3:0**

Prerequisite: MATH 2210 and MATH 2270, each with a grade of C- or better

Offers an introduction to algebraic structures. Includes groups, rings, integral domains, fields.

MATH 4210 Advanced Calculus I **3:3:0**

Prerequisite: MATH 3200 with a grade of C- or better

Provides a rigorous development of single-variable calculus. Includes sequences and series, continuity and differentiation, the Riemann integral, sequences of functions.

UPPER-DIVISION MATHEMATICS ELECTIVES**MATH 3210 Complex Variables** **3:3:0**

Prerequisite: MATH 2210 with a grade of C- or better

Includes the algebra of complex numbers, analytic functions, mapping properties of elementary functions, the Cauchy integral formula, residues, and conformal mapping.

MATH 3400 (2900) Partial Differential Equations **3:3:0**

Prerequisite: MATH 2280 with a grade of C- or better

Includes Bessel functions, Legendre polynomials, Fourier analysis, partial differential equations, and boundary value problems.

MATH 4000 Introduction to Probability **3:3:0**

Prerequisite: MATH 2210 with a grade of C- or better

Includes random variables, distributions, moments, central-limit theorems.

MATH 4220 Advanced Calculus II **3:3:0**

Prerequisite: MATH 4210 with a grade of C- or better

Provides a rigorous development of multivariable calculus. Includes partial derivatives, the Inverse Function Theorem, the Implicit Function Theorem, multiple integrals, line and surface integrals, Green's Theorem, and Stokes' Theorem.

MATH 4310 Introduction to Modern Algebra I **3:3:0**

Prerequisite: MATH 3300 with a grade of C- or better

First course in a year-long sequence that covers groups, rings, modules, and fields.

MATH 4320 Introduction to Modern Algebra II **3:3:0**

Prerequisite: MATH 4310 with a grade of C- or better

A continuation of MATH 4310.

MATH 4330 Theory of Linear Algebra **3:3:0**

Prerequisite: MATH 3300 with a grade of C- or better

Presents a theoretical treatment of vector spaces, linear transformations, and inner product spaces.

MATH 4340 Introduction to Number Theory **3:3:0**

Prerequisite: MATH 1220 with a grade of C- or better

Includes divisibility, prime numbers, unique factorization, congruences, and quadratic reciprocity.

MATH 4500 Introduction to Topology **3:3:0**

Prerequisite: MATH 4220 with a grade of C- or better

Includes topological spaces and continuity, connectedness, compactness, metric spaces, and the separation axioms.

MATH 4610 Introduction to Numerical Analysis I **3:3:0**

Prerequisite: MATH 2210, 2270, 2280 each with a grade of C- or better, and an approved programming language

Includes numerical solutions of equations in one variable, numerical solutions of linear and nonlinear systems of equations, and approximating eigenvalues.

MATH 4620 Introduction to Numerical Analysis II **3:3:0**

Prerequisite: MATH 4610 with a grade of C- or better

Includes numerical differentiation and integration, numerical solutions of initial value and boundary value problems for ordinary differential equations, numerical solutions of partial differential equations, and approximation theory.

MATH 490R Topics in Mathematics

2-3:2-3:0

Prerequisite: Instructor's approval

Studies a chosen topic in mathematics. The topic will vary depending upon student demand. Course may be taken more than once for different topics and for a maximum of 6 credit hours.

Appendix B

Program schedule.

SEMESTER 1

SEMESTER 2

Courses	Credit Hours		Courses	Credit Hours
MATH 1210 Calculus I	5		MATH 1220 Calculus II	5
Biology Course	3		PHYS 2210 Physics for Scientists and Engineers I	3
PE-S 1300 Fitness for Life	1		PHYS 221L Physics for Scientists and Engineers I Lab	1
ENGL 1010 Introduction to Writing	3		ENGL 2020 Intermediate Writing: Science and Technology *	3
Social/Behavioral Science Course	3		PHIL 2050 Ethics and Values	3
	15 total credit hours			15 total credit hours

* ENGL 2020 recommended

SEMESTER 3

SEMESTER 4

Courses	Credit Hours		Courses	Credit Hours
MATH 2210 Calculus III	3		MATH 2280 Ordinary Differential Equations	3
MATH 2270 Linear Algebra	3		MATH 3210 Complex Variables	3
PHYS 2220 Physics for Scientists and Engineers II	3		Fine Arts Course	3
PHYS 222L Physics for Scientists and Engineers II Lab	1		Humanities Course	3
HLTH 1100 Personal Health and Wellness	2		Upper-division elective	3
American Institutions Course	3			
	15 total credit hours			15 total credit hours

SEMESTER 5**SEMESTER 6**

Courses	Credit Hours		Courses	Credit Hours
MATH 3200 Foundations of Analysis	3		MATH 4210 Advanced Calculus I	3
MATH 3300 Foundations of Abstract Algebra	3		MATH 4310 Introduction to Modern Algebra I	3
Upper-division elective	3		Upper-division elective	3
Electives	6		Electives	6
	15 total credit hours			15 total credit hours

SEMESTER 7**SEMESTER 8**

Courses	Credit Hours		Courses	Credit Hours
MATH 4220 Advanced Calculus II	3		MATH 4500 Introduction to Topology	3
MATH 4320 Introduction to Modern Algebra II	3		MATH 4330 Theory of Linear Algebra	3
Upper-division elective	3		Upper-division elective	3
Electives	6		Electives	6
	15 total credit hours			15 total credit hours

Appendix C

Faculty. *List current faculty within the institution, with their qualifications, to be used in support of the program.*

The faculty of the UVSC Department of Mathematics form an experienced, enthusiastic, and diverse group of mathematicians and educators. Several of the faculty have won teaching awards, and seven of the faculty have professional educator licenses for the state of Utah. The Department has been adamant about hiring only enthusiastic teachers who have a positive attitude toward learning. For each new course that has been proposed to support this new program, there are at least two faculty members who are qualified and willing to teach the new course.

The year in parentheses indicates the year of hire at UVSC.

Dennis Allison (1997), Professor; M.S., Mathematics, University of Houston; B.S., Mathematics, and B.A., History, University of Houston

Kathy Andrist (2001), Assistant Professor; Ph.D., Mathematics (Geometric Topology), Brigham Young University; M.S., Mathematics, and B.S., Mathematics, Brigham Young University

David W. Brandt (1992), Associate Professor; M.S., Mathematics, University of Illinois; B.S., Electrical Engineering, and B.S., Mathematics, University of Missouri

Gary G. Carlson (1984), Professor; M.S., Mathematics, Colorado State University; B.S., Mathematics, South Dakota School of Mines and Technology

David Fearnley (2000), Assistant Professor; Ph.D., Mathematics (Set-theoretic Topology), University of Oxford; M.S., Mathematics, and B.S., Mathematics, Brigham Young University

Carolyn Hamilton (1993), Associate Professor; M.S., Mathematics, University of California, Riverside; B.S., Mathematics, Brigham Young University

Joseph Hwang (1986), Associate Professor; M.A., Mathematics, Brigham Young University; B.S., Mathematics Education, Brigham Young University Hawaii

Scott Lewis (1999), Assistant Professor; Ph.D., Mathematics (Dynamical Systems), Montana State University; M.S., Mathematics, and B.S., Mathematics, Brigham Young University

Ya Li (1990), Professor; Ph.D., Mathematics (Applied Mathematics), University of Utah; B.S., Mathematics, University of Science and Technology of China

Robert Loveridge (1985), Assistant Professor; Ph.D., Educational Administration (Educational Research and Evaluation), and M.A., Educational Administration, New Mexico State University; B.S., Mathematics, Brigham Young University

Steven McKay (2000), Assistant Professor; Ph.D., Mathematics (Numerical Partial Differential Equations), Colorado State University; M.S., Mathematics, and B.S., Mathematics, Utah State University

Christine Rossi Merrin (1992), Professor; Ph.D., Mathematics (Algebra), and M.S., Mathematics, New Mexico State University; B.S., Mathematics, University of Maryland

Stephen D. Merrin (1996), Associate Professor; Ph.D., Mathematics (Algebra and Logic), New Mexico State University; M.A., Mathematics, University of Maryland; B.A., Mathematics, University of Colorado, Boulder

Ray Sievers (1997), Assistant Professor; Ph.D., Applied Statistics (Modeling), University of Northern Colorado; M.S., Applied Mathematics, San Diego State University; B.A., Biology, University of California, San Diego

R. Lynn Turnquist (1993), Assistant Professor; M.A., Mathematics, University of Montana; B.A., Mathematics, and B.A., History, University of Montana

Peter S. Uluave (1978), Professor; M.Ed., Mathematics Education, Brigham Young University; B.A., Mathematics, Brigham Young University

Christine Walker (1992), Associate Professor; M.A. and B.A., Mathematics Education, Brigham Young University; A.S., Mathematics, Ricks College

MEMORANDUM

April 11, 2001

TO: State Board of Regents

FROM: Cecelia H. Foxley

SUBJECT: Utah Valley State College Request to Offer a Bachelor of Science Degree in Physics -- Non-Action Item

Issue

Utah Valley State College officials request approval to offer a Bachelor of Science Degree in Physics, effective Fall 2001.

Background

The proposed Bachelor of Science in Physics is part of the UVSC School of Science and Health effort to develop a coherent program that supports the School's other programs. This Degree would provide students with the education and skills necessary to obtain employment as Physicists and pursue graduate degrees in physics or related fields such as Engineering, Medicine, and Law. According to the *Occupational Job Outlook Handbook 2000*, graduates holding Bachelor's Degrees in Physics may qualify for applied research jobs in private industry or non-research positions in the Federal Government. Some become science teachers in secondary schools.

The proposed BS Degree in Physics is similar to the programs offered at Utah State University, University of Utah, Weber State University, Brigham Young University, and Westminster College. In addition, similar programs are provided at the major universities and four-year colleges in surrounding states. Much of the similarity in approach is demanded by the subject matter; there are certain core concepts that must be learned before more detailed discovery is possible. Much of the content of a baccalaureate degree in the proposed program is composed of such core concepts.

The first year of the proposed program's implementation will require an additional 1.9 FTE faculty and another full-time position will be added the second year. One new faculty member has already been hired for the 2001-2002 academic year.

UVSC officials recognize the importance of acquiring equipment that is standard in four-year

physics programs, and expanding physics laboratory facilities. Two laboratories are available to accommodate the proposed program. A separate room is used for some of the necessary equipment and a laboratory/classroom is can be converted to a dedicated physics laboratory. Outside funding is being sought to purchase new equipment for the physics laboratories. As noted before, the College is committing \$260,000 to its science programs, a portion of which will be spent to purchase new Physics equipment.

Policy Issues

Policy issues are addressed in the Introduction section of Tab G.

Options Considered

After the Regents have reviewed the proposal from Utah Valley State College to offer a Bachelor of Science Degree in Physics, they may raise questions or request additional information in anticipation of reaching a decision on the request at the June Board meeting. If satisfied that questions have been answered, the Regents may choose to advance the request to Action status and approve or deny the proposal.

Commissioner's Recommendation

It is the recommendation of the Commissioner that the Regents review Utah Valley State College's request to offer a Bachelor of Science Degree in Physics, address the specific and broad issues outlined in the Introduction memorandum, and request addition information necessary to reach a decision on the proposal at the June meeting of the Board. However, if satisfied that all major issues have been resolved, the Board may choose to make the proposal an action item and either approve or deny the requests at the April Board meeting.

Cecelia H. Foxley, Commissioner

CHF/MAP/PCS
Attachment

ACADEMIC AND APPLIED TECHNOLOGY PROGRAM COMMITTEE

Non-Action Item

Request to Offer a Bachelor of Science Degree in Physics

Utah Valley State College

Prepared for
Cecelia H. Foxley
by
Michael A. Petersen
and
Phyllis C. Safman

April 11, 2001

SECTION I The Request

Utah Valley State College officials request approval to offer a Bachelor of Science Degree in Physics, effective Fall 2001.

SECTION II Program Description

Complete program description. In addition to the current descriptions for the Associate of Science Degree with an emphasis in physical science, the following formal program description would appear in the College Catalog and other publications:

Programs: Students may receive:

Associate of Science or Arts with an emphasis in physical science

Bachelor of Science in Physics

Purpose of Degree: The proposed program would provide students with the education and skills necessary to obtain employment as physicists and pursue graduate degrees in physics or related fields such as engineering, medicine, and law. According to the *Occupational Job Outlook Handbook 2000*, graduates holding Bachelor's Degrees in Physics may qualify for applied research jobs in private industry or non-research positions in the Federal Government. Some become science teachers in secondary schools.

Admission Requirements: To be formally admitted to the proposed physics program, the student must complete a minimum of 30 credit hours of college level course work and complete the following courses with a C+ average and no less than a C in any course: PHYS 2210, PHYS 2220, PHYS 3030, MATH 1210, MATH 1220, or high school equivalent. When these courses are completed as required, the student should apply to the Department Chair for advisement and admission to the proposed program as a physics major.

Student Advisement: The Department Chair or Physics Advisor will initially meet with the student who will then be assigned to a member of the physics faculty for continued advising and mentoring. The student will be expected to meet with the advisor at least once a semester to review progress and registration plans.

Graduation Requirements: For graduation with a Bachelor's of Science in Physics, students must:

1. Complete the required minimum of 126 semester credit hours with a minimum of 40 upper-division credits. A minimum of 30 credit hours must be earned at UVSC.
2. A minimum of 84 credit hours must be in the major with a minimum of 20 credits taken at

- UVSC. A minimum of 55 Physics credits must be upper-division.
- Complete all upper-division Chemistry and Physics courses with a minimum grade of C or better.
 - Complete the core and distribution requirements listed for the Associate of Science Degree.
 - Achieve a minimum overall GPA of 2.0 with a minimum GPA of 2.25 in major courses.

SUGGESTED CURRICULUM PLAN: B.S. Degree in Physics

(See Appendix A for program Curriculum and Appendix B for Program Schedules.)

Semester 1

ENGL 1010 Introduction to Writing American Institutions	3
PE-S 1300 Fitness for Life	1
**CNS 1170 Visual Programming I	4
*MATH 1210 Calculus I	5
Total	16

Semester 2

*PHYS 2210 Physics Scientists/Engineers I	3
*PHYS 221L Physics Scientists/Engineers Lab I	1
*CHEM 1210 Principles of Chemistry I	5
*MATH 1220 Calculus II	5
ENGL 2020 Intermediate Writing: Science/Tech	3
Total	17

Semester 3

*PHYS 2220 Physics Scientists/ Engineers II	3
*PHYS 222L Physics Scientists/ Engineers Lab II	1
*MATH 2210 Calculus III	3
**CHEM 1220 Principles of Chemistry II	5
PHIL 2050 Ethics and Values	3
HLTH 1110 Personal Health and Wellness	2
Total	17

Semester 4

*PHYS 3030 Physics Scientists/Engineers III	3
*PHYS 303L Physics Scientists/Engineers Lab III	1
*MATH 2270 Linear Algebra	3
*MATH 2280 Ordinary Differential Equations	3
Biology Elective	3
Humanities Elective	3
Total	16

Semester 5

*PHYS 3100 Introduction to Modern Physics	3
*PHYS 3210 Intro to Experimental Physics I	2
*PHYS 3300 Intro to Classical Field Theory	3
*PHYS 3400 Classical Mechanics	3
*PHYS 490R Seminar	0.5
Fine Arts Elective	3
Total	14.5

Semester 6

*PHYS 3220 Intro to Experimental Physics II	2
*PHYS 3230 Principles Electronics /Physical Sciences	3
*PHYS 3500 Thermodynamics	3
*HIST 4320 History of Scientific Thought	3
*PHYS 490R Seminar	0.5
Social/Behavioral Science	3
Total	14.5

Semester 7

*PHYS 4300 Computational Physics	3
*PHYS 4410 Electrostatics and Magnetism	3
*PHYS 4510 Quantum Mechanics I	3
*PHYS 4210 Advanced Experimental Techniques	3
*Physics Elective***	3
*PHYS 490R Seminar	0.5
Total	15.5

Semester 8

*PHYS 4420 Electrodynamics	3
*PHYS 4520 Quantum Mechanics II	3
*Physics Electives***	6
*PHYS 4990 Senior Thesis	3
*PHYS 490R Seminar	0.5
Total	15.5

* Required for Physics Major

** Must take one of these two courses

***May select from the following courses:

PHYS 3050 Intermediate Topics in Astronomy, PHYS 4600 Optics, PHYS 4700 Acoustics, PHYS 4800 Solid State Physics

Justification for Number of Credits: The proposed credit hours are within the Regents' guidelines.

External Review and Accreditation: The proposal has been sent to faculty for their review at the following institutions: University of Utah, Weber State University, Utah State University, Brigham Young University, and Arizona State University. Many suggestions that resulted from these reviews have been incorporated into the proposal.

Projected Enrollment: Based upon current demand for majors courses, it is anticipated that approximately 15 students will be admitted annually into the proposed program.

Year	# of Faculty	FTE Students	Faculty:Student Ratio
2001-2002	1.9	14.5	1:15
2002-2003	2.9	30	1:15
2003-2004	2.9	30	1:15
2004-2005	2.9	30	1:15
2005-2006	2.9	30	1:15

Expansion of Existing Program: The Department of Physical Science does not have emphases in the various areas of Physical Science; therefore, there are no physics majors to track. Enrollments in physics courses have increased over the past three years from a headcount of 199 in Fall Semester 1998 to a head count enrollment of 600 in Fall 2000. This substantial increase would indicate increasing student interest in the area of physics.

Faculty: A faculty member will be assigned as the Department of Physics chairperson and will require six hours reassigned time from teaching to fill responsibilities related to this position. Hourly salary will be required each year to provide coverage for reassigned time for the Department Chair and reassigned time for faculty scholarship. The goal is to develop a faculty-student research model in the Department.

The first year of the proposed program's implementation will require an additional 1.9 FTE faculty. One more FTE faculty member will be added the second year. One new faculty member has been hired for the 2001-2002 academic year. (See Appendix C for Faculty and their Qualifications.)

Staff: A half-time secretary and laboratory manager would be needed to support the proposed program. The laboratory manager would be hired the first year. The secretarial position would be added the second year.

Library: The UVSC Library has a basic collection of physics journals. Most of the major physics journals are available through the library's electronic indices. Utah Valley State College

participates in the Utah Academic Library Consortium. Through this agreement, UVSC faculty, staff, and students have library privileges at all Utah institutions of higher education. Borrowing privileges are extended by consortial arrangements with other libraries upon presentation of a current UVSC identification card. Materials not available at UVSC or Brigham Young University library can be obtained free of charge from other city, State, and national libraries through interlibrary loan.

Additional library materials would be needed to support the proposed program. The budget includes \$3,000 for library materials the first year of program implementation and \$2,000 each year thereafter.

Learning Resources: Implementation of the proposed program will require acquisition of major research grade laboratory equipment. Private funding is being sought for equipment which would be shared with the proposed chemistry program. Cooperative arrangements are being pursued with Brigham Young University for use of the nuclear magnetic resonance spectrometer and electron microscopes. Most of the equipment and instruments necessary for the proposed program currently exist in the School of Science and Health. Needed instruments would be purchased once private funding is obtained. These include a transmission electron microscope, which is desirable, but not entirely necessary for the proposed program. A grant of \$260,000 made to the School will facilitate the purchase of the equipment just mentioned.

The equipment and the first semester it would be used are detailed below.

ITEM	First Semester of Use
Transducer Interface Bundles	4 th semester
Dynamics Systems	4 th semester
Moveable Piston Resonance Tubes	4 th semester
Computers with laboratory interface cards	4 th semester
Optical Spectrometer	4 th semester
Basic Optic Systems	6 th semester
Transmission Electron Microscope	7 th semester
X-ray Spectrometer	7 th semester
Nuclear Magnetic Resonance Spectrometer	7 th semester
Scanning Tunneling Microscope	7 th semester

SECTION III

Need

Program Necessity: UVSC's service area has one of the fastest-growing populations in the State. No other state-funded programs in physics exist within the UVSC service area. It is anticipated that demand for four-year programs and degrees, including physics, will increase as student enrollments

grow. The School of Science and Health has been involved in long-term planning to develop a core of baccalaureate degrees, including the proposed program in physics.

The core of science and science-based degrees supports programs that interact and build on each other, thus producing a learning environment for the students that is synergistic and additive. UVSC officials believe that this suite of science degree programs would create the core of the School of Science and Health for some time and would meet the education needs of students.

Labor Market Demand: Graduates with a Bachelor’s Degree in Physics are prepared to work in industry or pursue a graduate degree in physics or related fields, medicine or health related professions. The Industrial Physicist (September, 1997) reported that more than 200,000 people have received baccalaureate degrees in physics in the past 40 years. One in three of these graduates enters graduate school to study physics, one in five enters graduate or professional schools in areas other than physics, and two out of five enter the workforce directly.

Of those who go directly into the workforce, 63 percent are employed in industry. Job titles of those entering industry vary, but include engineer, test engineer, senior design engineer, manufacturing engineer, senior process development engineer, computer scientist, systems analyst, software developer, software engineer, health physicist, or medical physicist. The SPS Newsletter lists physics bachelor-prepared positions and includes titles such as optical production engineer, space engineer, science specialist, research associate, technologist, and lead application engineer. Because of the many job titles, finding precise workplace demand information is difficult.

Utah: The occupational title “Physicists” is not included in the Utah Job Outlook 2000-2005. Several other occupations in which baccalaureate-prepared physicists might be employed are listed.

Occupation	Number of Openings Annually	Job Prospect Classification	Avg Hourly Salary
Engineer, Civil	110	C	\$24.20
Engineer, computer	290	B	\$27.50
Engineer, Electrical and Electronic	220	B	\$28.40
Engineer, Mechanical	60	C	\$25.70
Computer Systems Analyst	380	B	\$23.20
Computer Support Specialist	110	B	\$14.90

Mountainland Region: Data on positions which employ baccalaureate-prepared individuals in

the Mountainland Regions show the following annual openings, hourly salary, and job prospect classification:

Occupation	Number of Openings Annually	Average Hourly Salary	Job Prospect Classification
Engineer, Civil	20	\$23.40	C
Engineer, Computer	140	\$26.80	B
Engineer, Electrical and Electronic	30	\$28.40	B
Computer Systems Analyst	40	\$21.40	B
Computer Support Specialist	110	\$14.90	A

Nationwide: The Bureau of Labor Statistics *Occupational Outlook Handbook 2000* indicates that there will be little change in employment of physicists through the year 2008. It further states that “. . . many persons with a physics background have found employment in private industry in the areas of information technology, semiconductor technology, and other applied sciences. This trend is expected to continue; however, many of these positions will be under job titles such as computer software engineer, computer programmer, engineer, and systems developer, rather than physicist.” The demand for employees in the computer industry will continue to increase much faster than average.

The *Occupational Outlook Handbook* lists the following median salaries for occupations in which baccalaureate-prepared Physicists might be employed:

Occupation	Median Annual Salary
Physicist	\$73,240
Systems Analyst	\$52,180
Computer Engineer	\$61,910
Computer Support Specialist	\$37,120
Computer Software Developer	\$46,670

The Industrial Physicist (August 1999) reported that the median salary of baccalaureate- and master degree-prepared physicists in 1998 was \$70,000 after 25 years of experience. The median salary for doctorally prepared physicists was reported to be \$84,000. The American Institute of Physicists reported that the median salary for baccalaureate-prepared Physicists was \$54,000 in 1998.

Student Demand: A survey was distributed to 394 Utah Valley State College students

enrolled in physics classes in February 2001. Of these 394 students, 131 (33.2 percent) indicated that they had a physical science emphasis. Of the 394 respondents, 33.5 percent indicated that they plan to complete a bachelor's degree program in the physical sciences. Their intended area of study in baccalaureate degree programs is detailed in Table 1.

TABLE 1
Intended Area of Baccalaureate Degree Study of Respondents

Area of Study	Number of Respondents	Percent of Response
Physics	11	2.8%
Engineering	94	23.86%
Chemistry	15	3.81%
Earth Sciences	7	1.7%
Other	93	23.6%
No Response	174	44.16%
TOTAL	394	99.93%

Students were also asked to indicate their plans following completion of the baccalaureate degree. Their responses are summarized in Table 2.

Table 2
Post-Baccalaureate Plans of Respondents

	Number of Respondents	Percent of Responses
Graduate School in Physics	11	2.8%
Employment in Industry	55	13.96%
Employment in Engineering-related Fields	71	18.02%
Law School	7	1.78%
Medical School	38	9.64%
Other	38	9.64%
No Response	174	44.16%
TOTAL	394	100%

Students were asked if they would be interested in enrolling in a baccalaureate program in physics if it were offered at Utah Valley State College. A total of 72 students indicated they would in the next five years. Responses are presented in Table 3.

Table 3
Respondents' Interest in Enrolling in Physics Program at UVSC

	Number of Responses	Percent of Responses
As soon as program starts	35	8.89%
Enroll in next two years	24	6.09%
Enroll in next 5 years	13	3.3
Not interested in enrolling	154	39.1%
No Response	168	42.64%
Total	394	100.02%

It should be noted that eleven (11) respondents indicated in question 3, Table 1, that they plan to receive a Bachelor's Degree in Physics and seventy-two (72) respondents indicated in question five, Table 3, that they would be interested in enrolling within the next five (5) years if UVSC offered a Bachelor's Degree in Physics. One possible interpretation of these data is that sixty-one students do not plan to continue their education in physics if the degree is not offered at UVSC.

Utah Valley State College: If UVSC does not offer a baccalaureate degree program in physics, 55 (13.95 percent) of the respondents plan to enroll in a physics program at another institution in the next five years. The vast majority of the respondents (359) indicated that UVSC should offer a baccalaureate program in physics.

Similar Programs: The following Utah schools offer baccalaureate degrees in physics similar to the program being proposed for UVSC: Utah State University, University of Utah, Weber State University, Brigham Young University, and Westminster College. In addition, similar programs are provided at the major universities and four-year colleges in surrounding states.

There would be no major course-work differences between the degree offered at UVSC and those offered elsewhere. Much of the similarity in approach is demanded by the subject matter; there are certain core concepts that must be learned before more detailed discovery is possible. Much of the content of a baccalaureate degree in the proposed program is composed of such core concepts.

Collaboration with and Impact on Other USHE Institutions: The program proposal was sent to the following USHE institutions for review and response: the University of Utah, Weber State University, and Utah State University. Many suggestions received as a result of these reviews have been included in this proposal.

Because of the increase of population in the UVSC service area, it is anticipated that a Bachelor of Science Degree in Physics would have little if any impact on similar programs in the State. It is anticipated that the proposed program at UVSC would increase the number of students in graduate programs in physics at other USHE schools.

Benefits: The chief beneficiaries of the proposed program would be students from the growing Utah Valley area who wish to pursue bachelor degrees, but who are not able to attend other higher education institutions within the State. UVSC and the USHE would benefit from the enrollments in the proposed program and the support of constituents whose needs are being met in this service region.

Consistency with Institutional Mission: The development and incorporation of the proposed degree would complement the mission of Utah Valley State College. The UVSC Mission Statement reads, in part, “Utah Valley State College is dedicated to providing a broad range of quality academic, vocational, technical, cultural, and social opportunities and experiences designed to encourage and assist students in attaining their goals and realizing their talents and potential, personally and professionally. The college is committed to meeting student and community needs for occupational training . . . ”

A baccalaureate degree in physics could be used as the entry into a graduate degree program or employment in industry. This complements the mission of the School of Science and Health to provide “. . . programs to meet community needs for professional education.” The School of Science and Health has been involved in long-term planning that anticipates future changes in student population. For several years, a core of baccalaureate degrees have been planned. These include degrees in biology, chemistry, earth science, mathematics, physics and nursing. The core of science and science-based degrees allows the School to create programs that interact and build on each other and provide a learning community for faculty and students. The proposed physics program is an integral part of this core.

SECTION IV

Program and Student Assessment

Program Assessment: The goal of the proposed program is to prepare bachelor-trained physicists for employment in industry and postgraduate education. The proposed method of assessment for the Bachelor of Science in Physics is to perform exit and follow-up interviews for graduates of the program.

Expected Standards of Performance: The following terminal objectives for the proposed program represent the skills and competencies students are expected to achieve. Upon graduation the student would be able to:

1. Apply the paradigms of modern physics to the solution of problems in science and engineering.
2. Solve advanced undergraduate problems in classical mechanics, thermodynamics, electricity and magnetism, and quantum mechanics.
3. Demonstrate competency with the mathematics commonly applied to the solution of problems in physics.
4. Apply mathematical theories to the analysis and evaluation of physical systems and the interpretation of results of data from experimentation and measurement.
5. Use appropriate assumptions in the construction of theoretical models.
6. Recast theory-based equations describing a physical system into a computer-based model or simulation.
7. Write effective computer code that can produce numerical solutions or simulations describing various properties of a physical system.
8. Evaluate the effectiveness and accuracy of a computer model intended to simulate the properties of a real physical system.
9. Use research-grade scientific instruments to obtain experimental data such as images, sample properties, or other characterization information.
10. Interface electrical and electronic instrumentation with personal computer systems to collect, record, and analyze data with a variety of commercially available software packages.

These standards would prepare the graduate for post-graduate study. They would also provide the graduate with the necessary skills, competencies, and knowledge for an entry-level position in industry.

Student Assessment: Formative assessment would take place throughout each course. Evaluation includes tests, quizzes, homework, and laboratory reports. Summative assessment will include comprehensive final examinations, senior thesis, exit, and follow-up interviews.

The Department Chair or adviser will conduct an exit interview with each graduate. During the interview, arrangements will be made to contact the graduate by mail, telephone, or e-mail for a follow-up interview one year later. In the exit interview, graduates will be asked their perceptions of how well the program has prepared them in each of the ten skills and competencies listed above. They will also be asked their plans for the future and their perceptions of strengths and weaknesses of the program.

A year after the exit interview, graduates would be contacted and asked about employment and any further education after leaving UVSC. They would be asked about their views of how well the program prepared them to use the ten listed skills and competencies in their present work or educational setting and for suggestions to improve the program.

Continued Quality Improvement: All assessment information would be reviewed and discussed by all physics faculty. Faculty would decide if any revisions are needed to strengthen and improve the proposed program. The faculty would prepare self-studies for regional accreditation and institutional program review. These self studies, as well as information obtained in the exit and follow-up interviews of graduates, would provide data for development, maintenance, and revision of the program.

**SECTION V
Finance**

Budget.

	2001-2002	2002-2003	2003-2004	2004-2005	2005-2006
SALARIES AND WAGES	\$88,526	\$144,587	\$150,371	\$156,385	\$162,641
BENEFITS	\$33,372	\$53,555	\$55,697	\$57,925	\$60,242
CURRENT	\$16,000	\$17,000	\$17,000	\$17,000	\$17,000
LIBRARY	\$3,000	\$2,000	\$2,000	\$2,000	\$2,000
EQUIPMENT	\$31,800	0	0	\$7,000	0
TRAVEL	\$2,000	\$3,000	\$3,000	\$3,000	\$3,000
TOTAL	\$174,698	\$220,142	\$228,067	\$243,310	\$244,882

Funding Sources: Private funds are being sought for major equipment purchase. cooperative agreements are being pursued with BYU for some equipment needed in the program. Enrollment growth funds will provide part of the funding needed. The grant of \$260,000 by the College will facilitate the purchase of equipment.

Reallocation and Impact on Existing Budgets: Reallocation of institutional funds is planned. No additional financial impact on other programs in the institution is anticipated.

Appendix A

Program curriculum.

New courses to be added in the next five years .

Course Number	Title	Credit Hours
FIRST YEAR		
PHYS 3100	Introduction to Modern Physics	3
PHYS 3210	Introduction to Experimental Physics I	3
PHYS 3220	Introduction to Experimental Mechanics II	3
PHYS 3230	Principles of Electronics and Physical Science	3
PHYS 3300	Introduction to Experimental Physics I	3
PHYS 3400	Classical Mechanics	3
PHYS 3500	Thermodynamics	3
PHYS 490R	Seminar	0.5
SECOND YEAR		
PHYS 4210	Advanced Experimental Techniques	3
PHYS 4300	Computational Physics	3
PHYS 4410	Electrostatics and Magnetism	3
PHYS 4420	Electrodynamics	3
PHYS 4510	Quantum Mechanics I	3
PHYS 4520	Quantum Mechanics II	3
PHYS 4990	Senior Thesis	3

Electives: One elective offered each semester based on faculty availability and student demand:

PHYS 3050	Intermediate Topics in Astronomy	3
PHYS 4600	Optics	3
PHYS 4700	Acoustics	3
PHYS 4800	Solid State Physics	3
PHYS 499R	Independent Study and Research	Variable

All program courses.

General Education

ENGL 1010 Introduction to Writing

3:3:0

Prerequisite: COMPASS Writing/DRP scores of 80+/77+, or ACT English/ACT Reading scores of 19+/19+, or completion of ENGL 0990 and RDG 1170 each with a grade of C- or higher, or challenge by essay assessment for a \$20 fee.

Emphasizes, in writing intensive workshops, rhetorical knowledge and skills. Teaches critical reading, writing, and thinking skills. Explores writing situations as complex and recursive processes. Enhances basic literacies, addressing both rhetorical problems and conventions of

language use (within the context of Standard Written English). Three major essays with graded revision(s), microthemes, in-class writing and collaboration, portfolios, and journals.

ENGL 2020 Intermediate Writing: Science and Technology **3:3:0**

Prerequisite: ENGL 1010

Explores public issues involving science and technology. Invokes problems for exploration. Emphasizes the production of well-reasoned and carefully researched written arguments that inquire, interrogate, and negotiate meanings across a diverse array of positions and in a variety of contexts, including writing about science and technology issues, and technical and/or professional documents. Includes at least one major research project (possible more), annotated bibliography and/or appendices, oral presentations (individual and/or group), portfolios, in-class writing, and collaboration. May include basic requirements for professional and technical documents (memos, letters, reports, and more).

CHEM 1210 Principles of Chemistry I **5:4:3**

Prerequisites: Math 1050 or equivalent

First semester of a full-year course primarily for students in engineering, the physical sciences, and the biological sciences. Emphasizes descriptive and modern applied chemistry. Studies fundamentals of laboratory techniques, chemical reactions and reactivity. Includes lab.

CHEM 1220 Principles of Chemistry II **5:4:3**

Prerequisites: CHEM 1210

Second semester of an introductory course covering fundamentals of chemistry. Primarily for students in engineering, the physical sciences and the biological sciences. Emphasizes descriptive and modern applied chemistry and qualitative analysis. Further develops fundamentals of laboratory techniques, chemical reactions and reactivity. Includes lab.

HLTH 1100 Personal Health & Wellness **2:2:0**

Examines the basic health “wellness” concept of good health through healthy living. Develops a greater appreciation for bodies and understanding of requirements to maintain or achieve good physical, mental, emotional, social, and spiritual health. Includes lecture, discussion groups, guest lecturers, media, and role-playing.

MATH 1210 Calculus I **5:5:0**

Prerequisite: One of the following: MATH 1050 and 1060, each with a grade of C- or better; MATH 1065 with a grade of C- or better; recommended placement by the COMPASS test; or instructor approval

Includes limits and continuity, differentiation, applications of differentiation, integration, applications of integration, derivatives of the exponential functions, logarithmic functions, inverse trigonometric functions, and hyperbolic functions, and related integrals. Prerequisite for calculus-based sciences.

PE-S 1300 Fitness for Life **1:5:1.5**

Required for AA/AS degree. Provides an individualized approach to physical fitness. Teaches principles of cardiovascular endurance, weight control, strength, and ability. Students apply learning by writing and engaging in a personalized fitness program.

PHIL 2050 Ethics and Values **3:3:0**

Prerequisite: ENGL 1010

A demanding transfer course, designed to challenge students to (1) explore and clarify their values; (2) critically read works of philosophy, literature, religion, and history toward understanding the basis of their ethical views; and (3) read, study, research, discuss, and write about difficult ethical issues. Focuses on issues of good vs. evil, justice vs. injustice, equality vs. inequality, and the necessity of defining and examining happiness of values. This confrontation with major philosophical concepts and systems is intended to engage students in serious reflection on issues of ethics and values as they relate to the students' own lives.

Biology (See Catalog) **3**

American Institutions (See Catalog) **3**

Humanities (See Catalog) **3**

Fine Arts (See Catalog) **3**

Social/Behavioral Science (See Catalog) **3**

Sub-Total **42**

Core Courses**Physics****PHYS 2210 Physics for Scientists and Engineers I** **3:3:0**

Prerequisite: MATH 1060 and 1050 Pre- or Co-requisite: MATH 1210

Corequisite: PHYS 221L

A calculus based class for science and engineering majors. A theoretical and applied course covering the principles of mechanics, fluids and thermal physics.

PHYS 221L Physics for Scientists and Engineers I Lab **1:0:3**

Designed to accompany PHYS 2210. Provides firsthand experience with laws of mechanics, thermal physics, and scientific data analysis. Includes one hour of recitation.

PHYS 2220 Physics for Scientists and Engineers II **3:3:0**

Prerequisite: PHYS 2210 Corequisite: PHYS 222L

A continuation of PHYS 2210. Covers electrostatics, electric currents, magnetism, and solid state electronics.

PHYS 222L Physics for Scientists and Engineers II Lab 1:0:3

Designed to accompany PHYS 2220. Provides firsthand experience with laws of electricity, magnetism, and scientific data analysis. Includes one hour of recitation.

PHYS 3030 Physics for Scientists and Engineers III 3:3:0

Prerequisite: PHYS 2210 Corequisite: PHYS 223L

A continuation of PHYS 2210. Covers simple harmonic motion, acoustics, optics, and nuclear physics. (Renumbered existing course PHYS 2230)

PHYS 303L Physics for Scientists and Engineers III Lab 1:0:3

Designed to accompany PHYS 2230. Provides firsthand experience with the laws of harmonic motion, waves, optics, nuclear physics, and scientific data analysis. Includes one hour of recitation. (Renumbered existing course PHYS 223L)

PHYS 3100 Introduction to Modern Physics 3:3:0

Prerequisite: PHYS 3030 Pre or Corequisite: Math 2280

Addresses topics of special relativity, development of quantum mechanics, physics of the atom, elementary solid state physics, and elementary particle physics.

PHYS 3210 Introduction to Experimental Physics I 2:1:1

PHYS 2210 or instructor's consent

Introduces selected experiments of classical and modern physics in a laboratory setting. Addresses topics of measurement, data analysis, report writing with an emphasis on modern instrumentation and computer assisted acquisition and analysis of data.

PHYS 3220 Introduction to Experimental Physics II 2:1:1

Prerequisite: PHYS 3210

Introduces selected experiments of classical and modern physics in a laboratory setting. Addresses topics of measurement, data analysis, report writing with an emphasis on modern instrumentation and computer assisted acquisition and analysis of data.

PHYS 3230 Principles of Electronics for the Physical Sciences 3:2:1

Prerequisites: PHYS 3030, MATH 2210

Introduces electronic measurement instruments commonly used in experimental physics laboratories. Covers principles of operation of transducers, solid-state devices, circuit analysis, logic circuits, and computers. Includes lab experience.

PHYS 3300 Introduction to Classical Field Theory 3:3:0

Prerequisites: Math 2210, Math 2270 Pre or Corequisite: Math 2280

Covers the applications of mathematical tools to experimental and theoretical research in the physical sciences. Introduces problems and systems common to physical science that can be modeled by the application of vector and tensor algebra, curvilinear coordinates, complex

variables, Fourier series and transforms, differential and integral equations.

PHYS 3400 Classical Mechanics **3:3:0**

Prerequisites: PHYS 2210 Pre-or Corequisite: MATH 2280

Treats classical mechanics of particles and systems using advanced mathematical techniques. Covers conservation principles, Lagrangian dynamics, harmonic oscillators, motion of rigid bodies, non-inertial reference frames.

PHYS 3500 Thermodynamics **3:3:0**

Prerequisites: PHYS 2210, MATH 1210, MATH 1220, MATH 2210

Addresses topics of heat, temperature, ideal gases, laws of thermodynamics, entropy, reversibility, thermal properties of solids, phase transitions, thermodynamics of magnetism, negative temperature.

PHYS 4210 Advanced Experimental Techniques **3:1:2**

Prerequisites : PHYS 3220, PHYS 3230 or instructor's consent

Introduces fundamental skills required for conducting successful scientific research in a physics laboratory setting. Covers vacuum technology, basic machine shop practice, electronic instrumentation, electron microscopy, scanning probe microscopy, nuclear magnetic resonance, and x-ray diffractometry.

PHYS 4300 Computational Physics **3:3:0**

Prerequisites: Phys 3030, Phys 3300, Math 2280

Covers computational algorithms with specific applications to the description of physical systems. Covers iterative approximation methods, computations using matrices and vectors, numerical integration, solutions of differential equations. Uses the MATLAB programming environment.

PHYS 4410 Electrostatics and Magnetism **3:3:0**

Prerequisites: Phys 3100, 3300

Explores the theory of electrostatic phenomena in a mathematically rigorous manner. Covers Gauss' Law, the Laplace and Poisson equations, boundary-value problems, and dielectrics.

PHYS 4420 Electrodynamics **3:3:0**

Prerequisite: PHYS 4410

Explores the theory of electrodynamic phenomena in a mathematically rigorous manner. Covers Ohm's and Kirchhoff's Laws, magnetic induction, the Biot- Savart Law, Ampere's Law, Ferromagnetism, Plasmas, Maxwell's Equations, and Special Relativity.

PHYS 4510 Quantum Mechanics I **3:3:0**

Prerequisites: PHYS 3100m PHYS 3300, MATH 2280

Covers postulates of quantum mechanics, state functions of quantum systems, Hermitian Operators,

the Schrodinger Equation, eigenfunctions of harmonic oscillators, particles in potential wells, etc.

PHYS 4520 Quantum Mechanics II **3:3:0**

Prerequisites: PHYS 3300, PHYS 4510, MATH 2280

Covers general principles and applications of quantum mechanics. Addresses topics of three dimensional problems, angular momentum operators, spin wavefunctions, perturbation theory, applications to atomic, molecular, solid-state, and nuclear physics.

PHYS 490R Seminar **0.5:0.5:0**

Exposes students to current research topics in physics and related fields. Provides an opportunity for students to attend weekly lectures presented by department faculty and invited speakers. Lectures are usually a summary of the speaker's recent research results presented at a level appropriate for junior and senior physics majors. Must be taken four semesters.

PHYS 4990 Senior Thesis **3:3:0**

Provides an opportunity for senior physics majors to participate in a current research project supervised by a department faculty member. Includes independent study and/or laboratory work as necessary. Culminates in the preparation of a written paper and oral presentation describing the results of the research project.

CSIS 1210 Visual Programming I **3:3:0**

Prerequisite: CSIS 1100, MAT 0990 recommended

Teaches applications of event-driven and structured programming techniques to the development of Windows software. Emphasizes program logic and user interface design. Using a popular visual programming language, students will design, code, test, and debug several programs.

HIST 4320 History of Scientific Thought **3:3:0**

MATH 1220 Calculus II **5:5:0**

Prerequisite: MATH 1210 with a grade of C- or better

Includes arc length, area of a surface of revolution, moments and centers of mass, integration techniques, sequences and series, parametrization of curves, polar coordinates, vectors in 3-space, quadric surfaces, and cylindrical and spherical coordinates. Prerequisite for calculus-based sciences.

MATH 2210 Calculus III **3:3:0**

Prerequisite: MATH 1220 with a grade of C- or better

Includes partial derivatives, gradients, Lagrange multipliers, multiple integrals, line integrals, Green's Theorem, surface integrals, the Divergence Theorem, and Stokes' Theorem.

MATH 2270 Linear Algebra **3:3:0***Prerequisite: MATH 1220 with a grade of C- or better*

Includes matrices and systems of equations, determinants, vector spaces, linear transformations, orthogonality, and eigenvalues and eigenvectors.

MATH 2280 Ordinary Differential Equations **3:3:0***Prerequisite: MATH 2210 with a grade of C- or better*

Includes separable equations, linear differential equations, differential operators and annihilators, variation of parameters, power series solutions of differential equations, Laplace transforms, systems of linear differential equations, and numerical methods

Physics Core Sub Total **84****Elective Courses**

Student must take three of the four courses marked*

PHYS 3050 Intermediate Topics in Astronomy** **3:3:0Prerequisites: PHYS 2210, Math 1210, Math 1220* *Pre or Corequisite: PHYS 2220*

Covers the physics of stars, star clusters, and galaxies. Treats in detail the current methods of astronomical data collection and analysis. Discusses the mathematics of the Theories of Relativity and its implications for the origin and structure of the Universe.

PHYS 4600 Optics** **3:3:0Prerequisites: PHYS 3030, MATH 2210*

An introductory course in linear and nonlinear optics. Includes detailed mathematical analysis of reflection, refraction, diffraction, interference, optical behavior in materials, and lasers with lab experience.

PHYS 4700 Acoustics** **3:3:0Prerequisite(s): PHYS 3030 MATH 2210*

An introductory course in sound and acoustics. Includes advanced mathematical analysis of sound phenomena, resonance, acoustics, and human hearing.

PHYS 4800 Solid State Physics** **3:3:0Prerequisites: PHYS 4420, PHYS 4510*

Explores topics relevant to the structure, behavior, and properties of crystalline materials. Includes a study of lattice vibrations, free electrons, semiconductors, superconductivity, dielectric and ferroelectric materials, magnetism etc.

499R Independent Study and Research **1-4:0:3-12***Prerequisite: Instructor Approval*

Uses independent study on selected topics and conducting experiments in the same topic. Provides guidance by a faculty member. May be taken for a maximum of four credits.

Sub Total **9****Track/Options (if applicable)****Total Number of Credits** **126**

Appendix B

Program Schedule. BS Degree in Physics

Semester 1		Semester 2	
ENGL 1010 Introduction to Writing	3	*PHYS 2210 Physics Scientists/Engineers I	3
American Institutions	3	*PHYS 221L Physics Scientists/Engineers Lab I	1
PE-S 1300 Fitness for Life	1	*CHEM 1210 Principles of Chemistry I	5
**CNS 1410 Visual Programming I	4	*MATH 1220 Calculus II	5
*MATH 1210 Calculus I	5	ENGL 2020 Intermediate Writing: Science and Technology	3
Total	16	Total	17
Semester 3		Semester 4	
*PHYS 2220 Physics Scientists/ Engineers II	3	*PHYS 3030 Physics Scientists/Engineers III	3
*PHYS 222L Physics Scientists/ Engineers Lab II	1	*PHYS 303L Physics Scientists/Engineers Lab III	1
*MATH 2210 Calculus III	3	*MATH 2270 Linear Algebra	3
**CHEM 1220 Principles of Chemistry II	5	*MATH 2280 Ordinary Differential Equations	3
PHIL 2050 Ethics and Values	3	Biology Elective	3
HLTH 1110 Personal Health and Wellness	2	Humanities Elective	3
Total	17	Total	16
Semester 5		Semester 6	
*PHYS 3100 Introduction to Modern Physics	3	*PHYS 3220 Intro to Experimental Physics II	2
*PHYS 3210 Intro to Experimental Physics I	2	*PHYS 3230 Principles Electronics /Physical Sciences	3
*PHYS 3300 Intro to Classical Field Theory	3	*PHYS 3500 Thermodynamics	3
*PHYS 3400 Classical Mechanics	3	*HIST 4320 History of Scientific Thought	3
*PHYS 490R Seminar	3	*PHYS 490R Seminar	0.5
Fine Arts Elective	0.5	Social/Behavioral Science	3
Total	14.5	Total	14.5
Semester 7		Semester 8	
*PHYS 4300 Computational Physics	3	*PHYS 4420 Electrodynamics	3
*PHYS 4410 Electrostatics and Magnetism	3	*PHYS 4520 Quantum Mechanics II	3
*PHYS 4510 Quantum Mechanics I	3	*Physics Electives***	6
*PHYS 4210 Advanced Experimental Techniques	3	*PHYS 4990 Senior Thesis	3
*Physics Elective***	3	*PHYS 490R Seminar	0.5
*PHYS 490R Seminar	0.5		
Total	15.5	Total	15.5

* Required for Physics Major

** Must take one of these two courses

***May select from the following courses:

PHYS 3050 Intermediate Topics in Astronomy, PHYS 4600 Optics, PHYS 4700 Acoustics, PHYS 4800 Solid State Physics

Appendix C

Faculty.

Faculty in the Department of Physical Science have the educational and teaching background required for the physics baccalaureate degree program. The following list identifies current contract faculty members of the Department of Physical Science who would have direct responsibility for physics courses:

Masood Amin

Highest degree(s): M.S. in Mechanical Engineering, Brigham Young University
Faculty at Utah Valley State College 1990-present
Current Rank: Instructor (Adjunct instructor 1990-1997)
Other Positions: Adjunct Instructor, Westminster College, 1992-1994
Areas of Interest: Thermal sciences, machine design and materials science

Malcolm Crawford

Highest degree(s): M.S. in Electrical Engineering, Brigham Young University
Faculty at Utah Valley State College 1985-present
Current rank: Professor
Other positions: Senior Design Engineer, Tronac, Inc., 1965-1967
Electronic Media Dept. Supervisor, Brigham Young University, 1967-1970
Electrical Engineering Dept. Senior Technician, Brigham Young University, 1970-1985
Senior Engineer and consultant, Eyring Research Institute, 1982-1984
Areas of interest: Physics, engineering

Quinton Hurst

Highest Degree: Ph.D. in Physics, Arizona State University
Faculty at Utah Valley State College 2000-
Current Rank: Assistant Professor
Other Positions: Research Associate Experimental Solid Group 1995-2000
Areas of Interest: Physics modeling, solid state physics

Phillip L. Matheson

Highest Degree: Ph.D., Plasma Physics, Brigham Young University
Faculty at Utah Valley State College to begin July 2001
Current Rank: Assistant Professor
Other positions: Scanning Electron Microscopist Technician Arizona State University, 1979-1981; Transmission Electron Microscopist Technician, Arizona State University, 1981-83; Research Assistant Teaching Assistant, Brigham Young University, 1983-1989; physics tenure track faculty, Ricks College, 1989-90

Paul Mills

Highest degree(s): M.S. in Physics, Brigham Young University
Teacher Certification Program, University of Utah
Faculty at Utah Valley State College 1982-present
Current Rank: Professor
Other positions: Holosonics, Inc. Research Assistant, Production Supervisor and Training Specialist, 1978-80
Preston High School Science and Physics teacher, 1980-1982
Areas of Interest: Optics, thermodynamics, celestial mechanics, planetary science and astronomy

Michael Perkins

Highest degree(s): M.A. in Physics, Brigham Young University
Faculty at Utah Valley State College 1970-present
Current Rank: Professor
Other Positions: Butelle N.W. Labs, Research Nuclear Chemist, 1968-1970
Areas of interest: Nuclear physics and reactor research

Paul L. Tayler

Highest degree(s): Ph.D. in Physical Metallurgy with emphasis in Materials, University of Utah
Faculty Utah Valley State College 1982 to Present
Current Rank: Professor
Other Positions: Kennecott Copper Corporation, 1969-1982
Product Metallurgist 1969-1976
Environmental Scientist 1976-78
Environmental Supervisor 1978-1982
Areas of interest: Air quality consultant (monitoring and modeling), 1982-present.
Computer modeling of atmospheric processes.

MEMORANDUM

April 1, 2001

TO: State Board of Regents

FROM: Cecelia H. Foxley

SUBJECT: Information Calendar, Academic and Applied Technology Education Committee

The following items have been submitted by the designated institutions for review by the Regents on the Information Calendar of the Academic and Applied Technology Education Committee. The items were previously approved by the institutional Board of Trustees. No action is required by the Regents.

1. Snow College South
 - A. Cosmetology Diploma - Change Name to Cosmetology Certificate

The name change involves the elimination of Computers and Business Applications course to match the state minimum (2,000 clock hours) requirements for cosmetology license. Students seeking A.A.S. will take additional courses.

- B. Office Technician with Speedwriting and Office Technician Emphasis Certificates - combine and change name to Transcription Specialist Certificate

The name change involves changing two courses (10 Key Data Entry and Desktop Publishing) from required to elective courses and eliminating the Records Management course covered in the Office Procedures course.

- C. Office Technician with Computer Applications Emphasis Certificate - change name to Computer Applications Specialist Certificate

The name change involves moving the Office Procedures course from elective to required status, and eliminating the Records Management course covered in the Office Procedure course.

- D. Administrative Assistant with Medical Emphasis AAS - change name to Administrative Medical Assistant AAS

The name change involves changing the Advanced Word Processing course from elective to

required status, and eliminating the records management and Medical Transcription Courses.

- E. Administrative Assistant with Legal Emphasis AAS - change name to Administrative Legal Assistant AAS

The name change involves changing Advanced Word Processing from elective to required status and eliminating the Records Management course covered in Office Procedures.

Commissioner's Recommendation

It is the recommendation of the Commissioner that the Regents review the Information Calendar and raise any questions they may have. No action is required by the Board.

Cecelia H. Foxley, Commissioner

CHF/MAP/DRC

MEMORANDUM

April 12, 2001

TO: State Board of Regents

FROM: Cecelia H. Foxley

SUBJECT: Consent Calendar, Academic and Applied Technology Education Committee

The following requests have been submitted by the University of Utah, Utah State University, Weber State University, and Salt Lake Community College for consideration on the Consent Calendar by the Academic and Applied Technology Education Committee.

1. University of Utah

A. Request to offer combined Bachelor/Master Degrees in Electrical Engineering

Rationale: Training beyond the BS degree is becoming increasingly important for students pursuing a career in electrical engineering. The Electrical Engineering Department proposes addressing this need by creating a program to ease the transition from undergraduate to graduate studies and to expedite completion of both degrees. The program goals include: 1. Attracting qualified undergraduate students into the graduate program in the Junior year. 2. Offering student benefits in obtaining combined Bachelor's and Master's degrees through an accelerated admission process, programmatic flexibility, specialized advising, and creating a link between the senior project and MS thesis. 3. Stimulating development of academic and career goals.

Initial admission to the program, near the end of the Junior year, allows qualified students to begin advanced study one year earlier than normal and be concurrently awarded a BS+MS or BS+ME degree in one year beyond the typical completion time of the BS degree. The MS and ME tracks offered serve different needs. The MS serves students who want to pursue more focused, independent study of a research topic, with the MS thesis topic expected to be an outgrowth of the required senior project. The ME option is available for students pursuing an in-depth study of a variety of topics in Electrical Engineering.

Minimum standards for admission to this program are a cumulative GPA of 3.3, enrollment in or completion of EE3910 Junior Seminar, and prior consultation with the Program Director. Only students currently enrolled full-time in the Electrical Engineering Department will be considered for admission. Transfer students must complete 24 credit hours as degree seeking students before applying.

Advising will be provided for all students participating in the combined degree program. The Department will appoint a member of the Graduate Committee to serve as the Program Director. Advising by the Director will occur both prior to and after admission to the combined program. The primary advisory role of the Director will be to assist students, during the programs first semester, in developing a program of study that facilitates completion of the program.

The combined degree program will be administered jointly by the Graduate School and the Electrical Engineering Department. The Department will assume primary administrative authority and responsibility reflecting the full authority and standards of both the undergraduate and graduate degrees, including any standards unique to the combined degree program. Only minor additional costs will be incurred for the management of this program. The current Graduate secretary will handle the extra paper work involved as part of his/her regular duties.

2. Utah State University

A. Request to establish a Center for Electronic Commerce in the College of Business and the Department of Business Information Systems and Education

Rationale: The proposed Center for Electronic Commerce will serve as a laboratory for students, faculty, and industry representatives to practice and research electronic commerce. Extremely high student demand for classes and programs in electronic commerce has already resulted in both an emphasis and minor in the Bachelor's Degree, and a specialization in the Master's Degree programs in Business Information Systems. The increased student demand, the demands on faculty for advise and consulting to business and industry, and the huge increase in the Internet economy all suggest the need for the Center.

DeLoitte Consulting says that 91 percent of U.S. businesses will be conducting transactions on the Internet by the end of 2001, up from about 30% presently. As a result, total business-to-business (B-to-B) e-commerce sales are projected to reach a stunning \$1.5 trillion by 2004 compared with about \$104 billion in 1999. Some projections are even greater. For instance, *Kiplinger Letter* reports that the e-commerce market will explode to a \$3 trillion business in the next four years. Currently, the United States has the fastest growing number of Internet users and the largest proportion of e-commerce consumers.

Other phases of electronic commerce are only in their initial stages. One such area is local, city, and state government. Citizens of local and state governments now go online instead of standing in line to pay utility bills, license fees, etc. *Internet Week* reports that approximately 87,500 non-federal government entities have just begun offering services over the web. Many Internet government e-

commerce jobs are becoming available with over \$2 billion to be spent in e-government during fiscal 2001.

Utah State University (USU) officials report that no other state institutions have formalized Centers for Electronic Commerce. Brigham Young University (BYU) has been awarded a substantial grant to establish a Center for Electronic Commerce. However, USU suggests that their Center will provide special emphases for local businesses, and other Utah and surrounding state's businesses, while the BYU Center will be targeting large national and international businesses.

The Center is not expected to negatively impact existing administrative structures, present faculty and staff, or student enrollments. Office support staff will be very minimal, and student office interns can be utilized. As funds are found it is expected that at least a part-time director will be retained to work with an advisory board from education, business and industry.

Physical facilities and equipment for the Center will be minimal. It is expected that only a small room and some computer equipment will be needed in the same location as USU's Management Institute. A fairly durable Internet server, as well as an additional microcomputer station, will be needed. The Business Information Systems and Education Department currently has a server for an ongoing electronic commerce project, and will be adequate for the initial needs of the Center. As donated funds are secured, other equipment items will be purchased.

The proposed budget for a Center for Electronic Commerce will be approximately \$100,000 for start-up costs with an ongoing budget of approximately \$75,000. USU believes that by providing virtual internships for its students and securing development funds from interested graduates and friends that these budgets can be attained. Budgetary impacts on other programs or units within the institutions should be positive as the Center is eventually expected to be profitable.

3. Weber State University

A. Request to offer a Bachelor of Science Degree in Computer Engineering Technology via internet instruction

The Department of Computer and Electronic Engineering Technology (CEET) in the College of Applied Science and Technology at Weber State University (WSU) is requesting approval to offer a Bachelor of Science (BS) Degree in Computer Engineering Technology (CET) via the Internet. WSU received approval to offer a BS in CET in the summer of 2000. The program had 40 majors last year and currently has 80 majors pursuing the degree. Certification by the Accrediting Board for Engineering and Technology (ABET) will be sought for the CET program during the next scheduled ABET visit to WSU in 2003.

Since WSU began offering online courses in 1997 through WSU Online, a wide variety of courses and full degree programs have been approved for online delivery. The BS in CET is the natural progression of WSU's focus on developing Internet-delivered courses and programs.

Need: With the increased use of computers in all aspects of work, the demand for graduates in CET has grown significantly. The CEET Department receives weekly requests for graduates from potential employers. The number of CET declared majors has grown rapidly and is anticipated to reach 200 or more by 2003.

The need for the online degree is very significant. Many of the students live and work outside of the WSU area making commuting difficult or impossible. About one half of the CEET students are working technicians from around the region, including Idaho, who want to pursue a BS degree without moving to Ogden.

Program Description: Students admitted to the online BS in CET program are expected to meet the same department requirements, policies and outcomes as do the on-campus students, with two exceptions. Online students will be required to (1) have five years of proven technical employment and be currently employed, and (2) successfully complete an interview before being allowed to start the third year BS in CET courses. Students in the online programs may complete required general education and support courses via WSU Online or at any accredited college or university. Core courses (40 credits) in software, hardware, math, and physics are the same for the CET program as for other CEET degrees. However, in the third year, CET students emphasize computer software development. Initially, the online course enrollments will be capped at a maximum of fifteen students each. As faculty acquire more experience with the online program format, the size of the classes may increase. The CEET faculty at WSU believe these admission and enrollment requirements are essential to ensure the quality of the graduates and the instruction the students receive.

The CEET online courses are as rigorous and effective as are the face-to-face courses. During the 2000/01 ABET accreditation review, all 22 CEET courses and sample course materials (syllabi, notes, homework, tests, lab assignments) were carefully reviewed. The evaluators were not able to distinguish the difference between the online and face-to-face courses.

Funding: Funding to support the online BS in CET program will come from WSU Online and from the College of Applied Science & Technology. WSU Online pays faculty to develop online courses and a per capita enrollment fee when courses are taught as overload by faculty (some faculty teach online courses as part of their regular teaching assignments). In addition to faculty expenses, there are operating expenses (hardware, software, multi-media) associated with offering online degree programs. Funds to support these expenses will come from reallocated existing and new growth funds within the WSU College of Applied Science and Technology.

Students in the online CET program have access to a wide array of student support services,

including the library, advising, registration, financial aid, and tutorial assistance, which are comparable to the services provided to the campus-based students. Feedback from students enrolled in online courses consistently indicates satisfaction with the level of support provided by WSU faculty and staff. In addition, WSU has a toll-free 1-800 number that can be used by students to contact any office on campus.

Currently, five CEET department faculty teach online courses. Three are full-time faculty teaching online courses as overload, and the other two are adjunct faculty who have successful track records of teaching face-to-face CEET courses. Each of these faculty successfully completed the training provided by WSU Online to develop and teach these courses. Developing an online version of a course often enhances the face-to-face version of the course because of the detailed and careful planning which must go into an online course. As the program grows, additional qualified adjunct faculty will be hired to teach in the program. Ongoing support for faculty and enrolled students is routinely provided by WSU Online staff. Existing CEET department staff, consisting of a secretary and lab manager, will be sufficient to support the online degree program.

B. Request to offer a Bachelor of Science Degree in Electronic Engineering Technology via internet instruction

The Department of Computer and Electronic Engineering Technology (CEET) in the College of Applied Science and Technology at Weber State University (WSU) is requesting approval to offer a Bachelor of Science (BS) Degree in Electronic Engineering Technology (EET) via the Internet. WSU received approval to offer a BS in EET in the 1970s and currently has 150 majors pursuing the degree. The EET program is accredited by the Accrediting Board for Engineering and Technology (ABET).

Since WSU began offering online courses in 1997 through WSU Online, a wide variety of courses and full degree programs have been approved for online delivery. The BS in EET is the natural progression of WSU's focus on developing Internet-delivered courses and programs.

Need: With the increased use of computers in all aspects of work, the demand for graduates in EET has grown significantly. The CEET Department receives weekly requests for graduates from potential employers. The number of EET declared majors is still growing, although more slowly in recent years, and is anticipated to reach 200 by 2003.

The need for the online degree is very significant. Many of the students live and work outside of the WSU area making commuting difficult or impossible. About one half of the CEET students are working technicians from around the region, including Idaho, who want to pursue a BS degree without moving to Ogden.

Program Description: Students admitted to the online BS in EET program are expected to meet

the same department requirements, policies and outcomes as do the on-campus students, with two exceptions. Online students will be required to (1) have five years of proven technical employment and be currently employed, and (2) successfully complete an interview before being allowed to start the third year BS in CET courses. Students in the online programs may complete required general education and support courses via WSU Online or at any accredited college or university. Core courses (40 credits) in software, hardware, math, and physics are the same for the EET program as for other CEET degrees. However, in the third year, EET students emphasize computer hardware development. Initially, the online course enrollments will be capped at a maximum of fifteen students each. As faculty acquire more experience with the online program format, the size of the classes may increase. The CEET faculty at WSU believe these admission and enrollment requirements are essential to ensure the quality of the graduates and the instruction the students receive.

The CEET online courses are as rigorous and effective as are the face-to-face courses. During the 2000/01 ABET accreditation review, all 22 CEET courses and sample course materials (syllabi, notes, homework, tests, lab assignments) were carefully reviewed. The evaluators were not able to distinguish the difference between the online and face-to-face courses.

Funding to support the online BS in EET program will come from WSU Online and from the College of Applied Science & Technology. WSU Online pays faculty to develop online courses and a per capita enrollment fee when courses are taught as overload by faculty (some faculty teach online courses as part of their regular teaching assignments). In addition to faculty expenses, there are operating expenses (hardware, software, multi-media) associated with offering online degree programs. Funds to support these expenses will come from reallocated existing and new growth funds within the WSU College of Applied Science and Technology.

Students in the online EET program have access to a wide array of student support services, including the library, advising, registration, financial aid, and tutorial assistance, which are comparable to the services provided to the campus-based students. Feedback from students enrolled in online courses consistently indicates satisfaction with the level of support provided by WSU faculty and staff. In addition, WSU has a toll-free 1-800 number that can be used by students to contact any office on campus.

Currently, five CEET department faculty teach online courses. Three are full-time faculty teaching online courses as overload, and the other two are adjunct faculty who have successful track records of teaching face-to-face CEET courses. Each of these faculty successfully completed the training provided by WSU Online to develop and teach these courses. Developing an online version of a course often enhances the face-to-face version of the course because of the detailed and careful planning which must go into an online course. As the program grows, additional qualified adjunct faculty will be hired to teach in the program. Ongoing support for faculty and enrolled students is routinely provided by WSU Online staff. Existing CEET department staff, consisting of a secretary and lab manager, will be sufficient to support the online degree program.

4. Salt Lake Community College

A. Proposal to transfer and restructure the Medical Laboratory Technician Program

Rationale: Salt Lake Community College (SLCC) proposes transferring the Medical Laboratory Technician (MLT) Program from the Department of Continuing Education to the School of Technology Effective Fall 2001. SLCC also proposes restructuring the program to better meet the needs of students and the medical community. In recognition of the expected growth in the need for medical lab technicians SLCC sees a need for this transfer and for a partnership with the University of Utah (U of U) in the enhancement of both content and course sequencing of the program.

As a result of this partnership for developing a restructured program, SLCC is proposes removing the special requirements for admission to the MLT program, accepting students into their first semester MLT courses without prerequisite requirements, and requiring students continuing beyond the first semester to have a grade of "C" or better in all required courses. Prerequisites required before being admitted into MLT courses are to be removed because sequencing of courses has incorporated what were prerequisites into the schedule of course work for the program. Additionally, proposed changes to MLT course sequencing will better balance student loads, both with respect to credit hours taken, and difficulty of courses each term. The new sequencing of the MLT course work provides for the offering of MLT courses each semester rather than all at the end.

Commissioner's Recommendation

It is the recommendation of the Commissioner that the Regents approve the requests from the University of Utah, Utah State University, Weber State University, and Salt Lake Community College as detailed in the Consent Calendar of the Academic and Applied Technology Education Committee.

Cecelia H. Foxley, Commissioner

CHF/MAP/DRC

MEMORANDUM

April 12, 2001

TO: State Board of Regents

FROM: Cecelia H. Foxley

SUBJECT: Utah State University - Change in Enrollment Reporting Status of Remedial Courses and Proposed Revision to Policy R506, Budget Related and Self Supporting Courses

Issue

The Regents are asked to consider changes to Policy R506, *Budget Related and Self Supporting Courses*. These changes would allow remedial courses at Utah State University's branch campuses and extension centers to be counted as budget-related courses beginning in 2001-2002.

Background

For the past 10 years the Board of Regents has maintained Policy R506, *Budget Related and Self Supporting Courses*, as a means to differentiate between those courses for which the Regents would seek state funding (budget-related) and those courses for which no state support would be sought (self-supporting). Whole categories of courses have been grouped as self-supporting since 1991, including: (1) concurrent enrollment courses taught exclusively in the public schools, (2) courses for which something other than Regent-approved tuition is assessed, (3) courses supported by external non-state funds, (4) correspondence courses, and (5) remedial courses at the University of Utah, Utah State University of Utah, and Southern Utah University. (Prior to 1997, remedial courses at all 4 universities were categorized as self-supporting. In that year, the Regents changed remedial courses at Weber State University to budget-related status due to the community college function of the University.) Presently, the USHE has over 7000 student FTEs in self-supporting courses.

During the 2001 Legislative session the Higher Education Appropriations Subcommittee discussed remedial courses offered at the branch campuses and extension centers of Utah State University. Representative Gordon Snow suggested that remedial education at these campuses and centers should receive state support since USU serves essentially a community college function in those communities. Based on the discussion of the subcommittee, the 2001 Legislature adopted intent language allowing these particular remedial courses offered by USU to

become budget-related. The Legislature also appropriated \$35,000 to provide funding for these courses beginning in 2001-2002. During the deliberations, USHE representatives expressed support for and helped gain passage of these provisions.

Policy Implications

Over the years, the Regents have held to the general premise that remedial education is a central mission of the State's community colleges and that such education warrants state support. The Regents have also generally held that remedial education at the universities should not be supported by the State. What occurred with Weber State University in 1997 was a refining of this general intent to account for the fact that in some instances USHE universities continue to serve a community college function for a local community. The actions of the 2001 Utah Legislature can appropriately be viewed as an additional refinement of the Regents' position on remedial education that should be reflected in policy.

One caveat that is needed to make this policy workable in communities where both Utah State University and a community college provide instruction (e.g. Tooele, Moab, Blanding), is to give the right of first refusal to offer remedial courses to the community college. For example, if Salt Lake Community College were to offer certain remedial courses in Tooele, Utah State University would be prohibited from offering the same courses. Conversely, remedial courses not available in Tooele could be offered by Utah State University as budget-related courses.

Attachment 1 is a draft of Policy R506 that incorporates two changes: (1) it allows remedial courses offered at the branches and centers of Utah State University to be classified as budget-related, and (2) it grants the right of first refusal to offer remedial courses in a community to the resident community college. Attachment 2 shows the location and level of remedial instruction offered by Utah State University's branch campuses and extension centers.

Recommendation

It is the recommendation of the Commissioner that the Regents review and approve the attached draft of Policy R506, *Budget Related and Self Supporting Courses*.

Cecelia H. Foxley, Commissioner

CHF/NCT
Attachments

MEMORANDUM

April 3, 2000

TO: State Board of Regents
FROM: Cecelia H. Foxley
SUBJECT: Action: College of Eastern Utah Campus Master Plans

Issue

As written in the attached letter from President Grace S. Jones, the master plans for the College of Eastern Utah (CEU) Price Campus and the CEU San Juan Campus were approved by their Board of Trustees on March 26, 2001. Annual public hearings were held in accordance with Regents' Policy R714. Copies of the Price Campus Master Plan and the San Juan Campus Master Plan are attached. Representatives will be available at the meeting to respond to questions.

Recommendation

It is the Commissioner's recommendation that the Board of Regents review the College of Eastern Utah's campus master plans, ask questions of College of Eastern Utah representatives at the meeting, and if satisfied, approve the College's master plans.

Cecelia H. Foxley, Commissioner

CHF/NCT/BB

Attachments

MEMORANDUM

April 12, 2001

TO: State Board of Regents

FROM: Cecelia H. Foxley

SUBJECT: Salt Lake Community College - Lease of Downtown Instructional Facility

Issue

Salt Lake Community College (SLCC) officials seek authorization to lease (as lessee) approximately 38,386 square feet of space in downtown Salt Lake City to house a Metro Learning Center.

Background

As described in the attached letter from Vice President Richard Rhodes (Attachment 1), the College intends to lease the upper five floors of the One/Main Plaza building located at 115 South Main Street in Salt Lake City. Programs offered there will target the training needs of downtown business and industry. The lessor on this transaction is E&H Investments.

Specific provisions of the proposed transaction are described below.

- The lease is a 10-year lease with a base rent of \$10 per square foot. A 3% annual escalation is associated with the base rent.
- In addition, the lease calls for a standard operation and maintenance charge of \$3.90 per square foot. The College would also be responsible for directly metered fuel and power expenses, which are estimated to be \$1.10 per square foot the first year. No percentage escalation is associated with the \$3.90 per square foot charge, but the amount the College pays for operations and maintenance will escalate as actual costs increase.
- During the first year, only the standard operation and maintenance charge of \$3.90 per square foot would be assessed. The College would also pay the metered fuel and power expenses. The full cost of the lease during the second year, which includes the base rent and full operations and maintenance, is expected to be approximately \$587,305.80.
- The lease has provisions for up to 114 downtown parking spaces at an annual expense to the college of approximately \$75,000.

- The lease is a full service lease with a 5-year renewal option at the conclusion of the initial 10-year term.
- The leased space will be built-out to the College's specifications. Initial schematics show the potential for approximately 19 classrooms, 14 offices, lobby and reception areas, library and media space, and three conference rooms.
- The operation of the center is to be funded with self-support revenues and other existing institutional funds. No state monies will be requested to operate the Metro Learning Center.
- The lease has a 12-month escape clause in the event that the State of Utah fails to fund the continued operation of the College.
- The College is scheduled to take possession of the space on October 1, 2001.

SLCC officials have prepared a summary response to issues surrounding the Metro Learning Center lease (Attachment 2). This information was presented to the SLCC Board of Trustees, which approved the lease at their April 11th, 2001 meeting.

Assistant Attorneys General Constance Hughes and David Jones have participated in the drafting of the lease (Attachment 3) and have expressed no reservations.

Policy/Operational Implications

In addition to the details of the lease, a critical part of this proposed arrangement is the business plan for operating the Metro Learning Center. The material prepared by SLCC officials in Attachment 2 addresses several policy and operational questions about the Center, including: What types of programs will be offered at the downtown center? What portion of the facility does the college intend to sub-lease? Are there potential partners? Will all of the programs offered at the center be self-supporting? What will be the total estimated operating budget for the center? What level of student enrollment is expected? What level of tuition collections is expected? Will there be subsidies provided to the center? What are the sources for such subsidies and what will the subsidies total? SLCC officials will be prepared to address these questions and others that the Regents may have at the April 20th Regents meeting.

Recommendation

It is the recommendation of the Commissioner that the Regents discuss with SLCC officials their plans for a Metro Learning Center in downtown Salt Lake City--focusing on the financial viability of such a self-support operation--and if satisfied that the Center is in the best interest of the College, authorize SLCC to execute the lease in Attachment 2.

Cecelia H. Foxley, Commissioner

MEMORANDUM

April 12, 2001

TO: State Board of Regents

FROM: Cecelia H. Foxley

SUBJECT: Proposed Revision to Policy R561, *Accounting and Financial Controls*

Issue

The Regents are asked to consider changes to Policy R561, *Accounting and Financial Controls*. These changes would establish standards for capitalizing and depreciating capital assets at the nine USHE institutions.

Background

Many of the accounting conventions that have been used for generations at public colleges and universities in the United States will soon change as a result of two pronouncements by the national organization responsible for setting accounting standards for public higher education. The Governmental Accounting Standards Board (GASB) issued Statement No. 34, Basic Financial Statements for State and Local Governments, and Statement No. 35, Basic Financial Statements for Public Colleges and Universities, in 1999. These pronouncements will begin affecting the accounting operations at the nine USHE institutions in the 2001-2002 fiscal year. The overriding purpose for these changes is to make the financial statements of public colleges and universities more comparable to those of the private sector and more useable by governing bodies such as the Board of Regents.

Among the changes mandated by GASB 34 and 35 will be the requirement that public colleges and universities begin capitalizing and depreciating their capital assets, including: buildings, building improvements, land, land improvements, infrastructure, equipment, library books, and works of art.

The attached draft of policy R561, *Accounting and Financial Controls*, establishes standards for capitalizing and depreciating assets within the USHE. Guidance is given on: (1) methods of depreciation, (2) capitalization limits, (3) useful lives, and (4) residual values. These standards have been developed in close correlation with each institutions' Vice President for

Administration, Controller, and Budget Officer as well as with the State Auditor's Office, and the State Division of Finance. All parties have agreed to this draft policy.

Policy Implications

This is likely the first in a series of Regent policy changes resulting from GASB 34 and 35. Other possible system-level policy revisions include: (1) changing the rules regarding accounting for Summer Term revenues and expenses, (2) prescribing certain standard elements of institutional financial statements, and (3) changing related budgeting and enrollment reporting guidelines. A GASB 35 Workgroup, consisting of institutional accounting and budgeting staff, and State accounting and auditing officials will continue to assist in the development of other needed policy changes.

Recommendation

It is the recommendation of the Commissioner that the Regents approve the attached draft of Policy R561, *Accounting and Financial Controls*.

CHF/NCT
Attachments

Cecelia H. Foxley, Commissioner

R561, Accounting and Financial Controls

R561-1. Purpose

To provide for standardized accounting records and procedures in the Utah System of Higher Education.**R561-2. References**

2.1. Utah Code [§53B-6-102](#) (Standardized Systems Prescribed by the Board)

2.2. Utah Code [§53B-7-101](#) (Financial Affairs)

2.3. Policy and Procedures [R120](#) , Bylaws of the State Board of Regents

2.4. Report "Internal Controls - Integrated Framework" of the Committee of Sponsoring Organizations of the Treadway Commission

2.5 Statement No. 34 of the Governmental Accounting Standards Board

2.6 Statement No. 35 of the Governmental Accounting Standards Board

2.7 State of Utah Accounting Polices and Procedures Manual (FIACCT)

R561-3. Policy

3.1. Annual Financial Reports of Member Institutions to be Issued in Accordance with Generally Accepted Accounting Principles for Colleges and Universities - Each member institution shall issue an annual financial report for each fiscal year, in accordance with generally accepted accounting principles for colleges and universities and such annual reports shall be filed with the Office of the Commissioner for the use of the Board and its staff upon publication.

3.1.1 Fixed Asset Accounting Conventions - To preserve financial statement comparability in reporting fixed assets, institutions will calculate depreciation using the straight line method and adopt the following guidelines related to capitalization, useful lives, and residual values. An institution may deviate from these guidelines upon showing contravening federal or state regulations, likely adverse audit determinations, or other exceptional circumstances.

3.1.1.1. Equipment - Capitalization limits for equipment are as follows: \$5,000 for University of Utah, Utah State University, Weber State University, Utah Valley State College and Salt Lake Community College; \$3,000 for Dixie State College; \$1,000 for Southern Utah University, Snow College and

College of Eastern Utah. The determination of useful lives for equipment shall be as reflected in the State of Utah Standard Useful Life Table (FIACCT 09-09.01). Residual values will be determined by each institution on a case by case basis.

3.1.1.2. Land - All land shall be capitalized and not depreciated.

3.1.1.3. Buildings - Capitalization limits for buildings are as follows: \$50,000 for University of Utah, Utah State University, Weber State University, Utah Valley State College and Salt Lake Community College; \$20,000 for Southern Utah University, Snow College, Dixie State College and College of Eastern Utah. Buildings are determined to have a 40-year useful life at the time initial construction is completed. Residual values will be determined by each institution on a case by case basis.

3.1.1.4. Building Improvements - Capitalization limits for building improvements are as follows: \$50,000 for University of Utah, Utah State University, Weber State University, Utah Valley State College and Salt Lake Community College; \$20,000 for Southern Utah University, Snow College, Dixie State College and College of Eastern Utah. When an improvement extends the useful life of a building, the building and the improvement shall be determined to have a remaining useful life equal to the length of time which the improvement extends the building's useful life. When an improvement does not extend the useful life of a building, the useful life of the improvement shall be determined to be the remaining useful life of the building. Residual values will be determined by each institution on a case by case basis.

3.1.1.5. Infrastructure - Capitalization limits for infrastructure items are as follows: \$50,000 for University of Utah, Utah State University, Weber State University, Utah Valley State College and Salt Lake Community College; \$20,000 for Southern Utah University, Snow College, Dixie State College and College of Eastern Utah. The determination of useful lives for infrastructure items shall be as reflected in the State of Utah Standard Useful Life Table (FIACCT 09-09.01). Residual values will be determined by each institution on a case by case basis.

3.1.1.6. Land Improvements - Capitalization limits for land improvements are as follows: \$50,000 for University of Utah, Utah State University, Weber State University, Utah Valley State College and Salt Lake Community College; \$20,000 for Southern Utah University, Snow College, Dixie State College and College of Eastern Utah. The determination of useful lives for land improvements shall be as reflected in the State of Utah Standard Useful Life Table (FIACCT 09-09.01). Residual values will be determined by each institution on a case by case basis.

3.1.1.7. Library Books - All library books shall be capitalized. The useful life of all books shall be determined to be 20 years. Residual values will be determined by each institution on a case by case basis.

3.1.1.8. Works of Art - Capitalization limits for Works of Art are as follows: \$5,000 for University of

Utah, Utah State University, Weber State University, Utah Valley State College and Salt Lake Community College: \$2,000 for Southern Utah University, Snow College, Dixie State College and College of Eastern Utah. Pieces classified as inexhaustible works of art shall not be depreciated. Useful lives for other works of art shall be determined by each institution on a case by case basis. Residual values for other works of art will be determined by each institution on a case by case basis.

3.2. Certification of Financial and Other Documents - Financial and other documents requiring official certification by officers of the Board shall be subject to the following procedures:

3.2.1. Board authorization or approval for certification of such documents shall first be obtained, ordinarily at a regular Board meeting.

3.2.2. The necessary documents shall then be certified in writing (a) as to the above approval and (b) as to their accuracy and consistency with the Board authorization, by the President of the institution concerned, or by the Office of the Commissioner of Higher Education, or both.

3.2.3. The documents thus certified and submitted may then be taken directly to the officer or officers of the Board concerned for any required signatures.

3.2.4. The Commissioner of Higher Education and the Associate Commissioner for Finance and Facilities are hereby authorized to sign for either the Secretary or the Treasurer of the Board in the event of the unavailability of either the Secretary or the Treasurer.

3.2.5. The Associate Commissioner for Finance and Facilities is hereby appointed Treasurer of the Board, under Section 3.2.3. of R120, Bylaws of the State Board of Regents, and shall serve in such capacity subject to the recommendation of the Commissioner of Higher Education to, and action by, the Board.

3.3. Accounting and Operating Controls - The Board authorizes each President and institutional Board of Trustees to establish and maintain a system of internal accounting and operating controls for their institution. This system of internal controls shall incorporate the principles and objectives specified by the Committee of Sponsoring Organizations of the Treadway Commission report "Internal Control - Integrated Framework." In addition, the Board recommends the following:

3.3.1. That institutional Boards of Trustees authorize the President and Chief Financial Officer, or Chief Financial Officer and Controller, to establish imprest bank accounts for such purposes as they deem necessary for efficient operation of their institution and authorize appropriate signatures for same.

3.3.2. That institutional Boards of Trustees authorize all bank accounts and approve all signatures except as provided in recommendation 3.3.1.

3.3.3. That the Controller or Treasurer at each institution maintain an up-to-date record of all bank accounts and authorized signatures.

3.3.4. That from time to time there should be a review of cash on hand and cash receipts and internal examiners shall undertake an examination of cash disbursements, accounts payable, and purchasing.

3.3.5. That the annual financial reports, as of June 30 each year, shall include a record of the bank accounts and authorized signatures at each institution.

(Adopted March 23, 1971, amended April 27, 1971, September 25, 1973, and September 2, 1999.
Proposed amendments April 2001.)

MEMORANDUM

April 9, 2001

TO: State Board of Regents

FROM: Cecelia H. Foxley

**SUBJECT: ACTION: Proposed Revision to Policy R610, Board of Directors of the Utah
Higher Education Assistance Authority**

Issue

Chairman Johnson recommends adding the “engineering, computer science, and related technology student loan forgiveness program” to the programs for which the Board of Regents has delegated oversight authority and responsibility to the UHEAA Board of Directors. Regents’ approval is requested for the revision of Policy R610 to confirm the recommended delegation.

Background

1. UHEAA Board of Directors. The UHEAA Board of Directors was created by the Board of Regents, pursuant to statutory authority, in December 1982, initially for the express purpose of governing on the Regents’ behalf the Utah Student Loan Guarantee Program (LGP). Within the Office of the Commissioner of Higher Education, administrative responsibility for the Utah Student Loan Programs, including the SBR Loan Purchase Program (LPP) and for need-based student financial aid programs, was assigned initially to the Associate Commissioner for Budget and Finance and, since 1991, to the Associate Commissioner for Student Financial Aid.

Agenda items for LPP and the need-based financial aid programs were routinely considered by the Board of Regents until May 1998, when the Regents adopted a new version of Policy R610 to add LPP and all need-based aid programs to the delegated authority and responsibility of the UHEAA Board. A copy of Policy R610 is attached for reference.

In accordance with Sections 3.3 and 3.4 of Policy R610: “Responsibilities and functions delegated to the UHEAA Board of Directors include those which are statutorily assigned to the Board of Regents in its capacity as UHEAA [which are LGP and UESP] and those for other student financial aid program functions of the Board of Regents” and the UHEAA Board “shall report to and serve at the pleasure of the Board of Regents, and shall have the specific duty and obligation to provide the entire Board of Regents with complete and timely information as to all of its activities, decisions, policies and recommendations.”

2. Engineering, Computer Science and Related Technology Student Loan Program. S.B. 61 (2001 Session) establishes a new Section 6-105 of Utah Code, Title 53B, enacting the *Engineering and Technology Initiative*. Section 105.7 establishes a new loan forgiveness program, as follows:

“53B-6-105.7. Initiative student loan and loan forgiveness program.

(1)(a) There is established an engineering, computer science, and related technology student loan program as a component of the initiative created in Section 53B-6-105.

(b) The program is established to recruit and train engineering, computer science, and related technology students to assist in providing for and advancing the intellectual and economic welfare of the state.

(2) (a) The board:

(i) may make rules for the overall administration of the program in accordance with Title 63, Chapter 46a, Utah Administrative Rulemaking Act; and

(ii) shall administer the program consistent with the general student loan provisions outlined in Title 53B.

(b) The board shall also use the following policies and procedures in administering the student loan program:

(i) Students may use their loans at any institution within the state system of higher education that offers an engineering, computer science, or related technology baccalaureate degree;

(ii) loans shall be given to students who declare an intent to complete a prescribed course of instruction in one of the areas referred to in Subsection (2)(b)(i) and to work in the state for a period of four years after graduation in one of those areas;

(iii) a loan may be cancelled at any time by the institution of attendance, if the student fails to make reasonable progress towards obtaining the baccalaureate degree or there appears to be a reasonable certainty that the student does not intend to work in the state upon graduation, and the board shall require repayment together with interest; and

(iv) (A) a loan recipient who does not work in the state in one of the areas listed in Subsection (1)(a) for a term equal to the number of years of the loan within a reasonable period of time after graduation shall repay a graduated portion of the loan based upon the uncompleted term together with appropriate interest, unless waived for good cause; and

(B) one year of employment as an engineer or in the field of computer science or related technologies is credit for a one-year loan for tuition and fees.

(3) The Legislature shall make an annual appropriation to the board to fund the student loan program created in this section.”

S.B. 61 included “a one-time appropriation of \$500,000 of income tax revenues to capitalize the student loan program established under Section 53B-6-105.7.”

The language of Section 53B-6-105.7 provides that the new program be administered “consistent with the general student loan provisions outlined in Title 53B.” Subject to legal advice, it is the general intention of the Commissioner and the Associate Commissioner for Student Financial Aid to propose a program administration design that utilizes UHEAA-guaranteed Federal Stafford Loans as the vehicle.

In such a design, successful applicants would receive a certificate guaranteeing the forgiveness of loan amounts equal to tuition and fees paid, for each year of qualifying work in Utah after graduation. Students with demonstrated financial need would be able to borrow subsidized Stafford Loans, which provide advantageous loan terms, and those without demonstrated financial need would be able to borrow unsubsidized Stafford Loans, which carry favorable interest rates but do not receive the in-school interest subsidy from the Federal Government.

There would be a number of advantages if this design proves feasible: (1) It would avoid a need to add any staff or incur additional costs to create and administer a new and separate loan program accounting system; (2) Since many students need to borrow more than just the amount of tuition and fees [the portion of expenses to be covered by the new program’s loan forgiveness provision], those students would be able to obtain the necessary funds in a single loan rather than having to juggle two different loans; (3) Students who ultimately do not qualify for the loan forgiveness provision would be able to repay their loans under the generous provisions of the Federal Stafford Loan Program and also qualify for additional cost savings through UHEAA’s borrower benefit programs.

Terms and conditions used for the special administrative requirements of the new program, such as determination of what specific fields and disciplines are included in the defined eligible degree programs, will follow applicable decisions adopted by the Board of Regents with advice of the Technology Initiative Advisory Board created by the legislation.

The proposed revision of Policy R610 is addition of the following new subsections:

2.7 Utah Code, Title 53B, Chapter 6, Section 105.7 (Engineering, Computer Science, and Related Technology Loan Forgiveness Program). Chapter 6, Section 105.7, enacted by the 2001 Legislature, establishes within the Engineering and Technology Initiative an engineering, computer science, and related technology student loan forgiveness program.

3.6.2.4. The Utah Engineering, Computer Science, and Related Technology Loan Forgiveness Program under Title 53B, Chapter 6, Section 105.7

Recommendation

It is the recommendation of the Commissioner that the Board of Regents approve new Sections 2.7 and 3.6.2.4, as set forth above, for addition to Policy R610

Cecelia H. Foxley, Commissioner

Attachment:

Please see <http://www.utahsbr.edu/policy/r610.htm> for attachment

CHF/CGN

MEMORANDUM

April 12, 2001

TO: State Board of Regents
FROM: Cecelia H. Foxley
SUBJECT: University of Utah - University Hospital Expansion Update

Issue

University of Utah officials seek to inform the Regents of a planned change in the scope of the University Hospital Expansion Project. The change involves adding a 176-stall parking structure to the project.

Background

As outlined in the attached letter from Michael Benson, Special Assistant to the President, the University is considering an option of building two levels of parking as part of the expansion of the University Hospital. The design/build firm for the hospital expansion has stated that such a structure could be built quite economically if it were combined with the construction of an already planned helipad.

Details of this planned scope change will be presented to the Regents at their April 20th meeting. If this change goes forward, the Regents will ultimately be asked to issue approximately \$2.3 million in industrial development revenue bonds to provide financing for the project. As stated in the attached letter, the planned scope change has the support of the University's Board of Trustees.

Recommendation

Since the Regents have already approved the expansion of the University Hospital, no formal action is required at this time. University officials seek, however, to inform the Regents of the planned scope change, and to gauge Regent support for a related change in the financing of the project that involves the issuance of industrial development bonds.

Cecelia H. Foxley, Commissioner

CHF/NCT
Attachment

MEMORANDUM

April 12, 2001

TO: State Board of Regents

FROM: Cecelia H. Foxley

SUBJECT: INFORMATION: USHE–Governor Leavitt’s Administrative Actions Regarding FY 2000-01 Capital Development Funding

Issue

As a result of recent tax collection information, Governor Leavitt has taken administrative action to hold back funding for four capital development projects. The funding for each project was to be a supplemental appropriation in the current budget year. Three of the projects are USHE projects.

Background

The 2001 Legislature appropriated \$155.8 million of one-time funding for nine USHE capital development projects. Of this amount, \$133.5 million came from current year (FY 2000-01) supplemental appropriations. Projected revenue surpluses in the current year made the supplemental appropriations possible. Subsequent to Governor Leavitt signing these appropriations into law, information from recent tax collections indicated that current year revenue surpluses may be \$20 to \$30 million less than originally estimated. To prevent the premature commitment of state tax funds, the Governor exercised his authority under Utah Code Annotated 63-38-10 to hold back \$35.4 million in state tax fund appropriations. The following table identifies the projects and amounts:

Project	FY 2000-01 Appropriation	Amount Withheld	Amount Available
University of Utah -- Engineering Building ⁽¹⁾	\$2,315,000	\$2,315,000	\$0
Dixie State College -- Eccles/Graff Fine and Performing Arts Center ⁽²⁾	\$14,088,800	\$13,000,000	\$1,088,800
Snow College -- Performing Arts Building ⁽²⁾	\$16,086,800	\$15,100,000	\$986,800
State Parks -- Facilities Acquisition and Development	\$10,000,000	\$5,000,000	\$5,000,000
TOTAL	\$42,490,600	\$35,415,000	\$7,075,600

(1) An additional \$17,298,000 for this project was appropriated in FY 2001-02; it is not affected by the Governor's action to withhold FY 2000-01 appropriations.

(2) The amount available is intended to fund the project design.

Attachment 1 is a letter from Lynne Ward, Director of the Governor's Office of Planning and Budget, which explains the Governor's action. The four projects were selected because (1) the funding for the projects came from the current year supplemental funding, which is the year with a potential revenue shortfall; (2) the amounts were sufficient to provide a buffer for revenue projections; (3) many of the other supplemental appropriations were to reimburse already committed expenditures, such as adoption assistance, jail reimbursement, or fuel and power costs; and (4) other supplemental appropriations for capital projects were for the Utah State University Heat Plant, which was partially funded last year and needs to be completed, and a package of four USHE classroom buildings, which need to proceed as a group to achieve the expected cost savings.

At this point, Governor Leavitt intends to continue examining the revenue situation and determine an appropriate time to release the withheld appropriated revenues. Staff will monitor these actions and report any further developments.

Recommendation

This is an information item only. No action is necessary.

Cecelia H. Foxley, Commissioner

CHF/NCT/BLM
Attachment

MEMORANDUM

April 9, 2001

TO: State Board of Regents

FROM: Cecelia H. Foxley

**SUBJECT: INFORMATION: Student Financial Aid-UHEAA
Board of Directors Report**

Report

The next meeting of the UHEAA Board of Directors is scheduled for 10:00 A.M. on Tuesday morning, April 10. A copy of the agenda for the April 10 meeting is attached as Exhibit A, and a copy of the minutes from the Board's meeting on January 25 is attached as Exhibit B.

Also attached (Exhibits C and D) are copies of two items from the Board's agenda for April 10-

1. Board Report #2 ACTION Adoption of UHEAA Privacy Policy
2. Board Report #3 INFORMATION Current Status and Planning for
Systems Conversions

The Board's next regularly scheduled meeting will be on May 29, when it will review and act on FY 2002 budgets for the major UHEAA operating programs-Utah Student Loan Guarantee Program (LGP), State Board of Regents Loan Purchase Program (LPP), and Utah Educational Savings Plan Trust (UESP).

Cecelia H. Foxley, Commissioner

Attachments

CHF/CGN

AGENDA

CONFERENCE CALL MEETING OF THE UTAH HIGHER EDUCATION ASSISTANCE AUTHORITY BOARD OF DIRECTORS

355 WEST NORTH TEMPLE
3 TRIAD CENTER, FIFTH FLOOR
REGENTS BOARD ROOM
SALT LAKE CITY, UTAH

Tuesday, April 10, 2001
10:00 A.M. - 11:00 A.M.
(Mountain Daylight Savings Time)

CONFERENCE CALL INSTRUCTIONS

The UHEAA Board of Directors Conference Call arrangements have been confirmed for **Tuesday, April 10, 2001 at 10:00 a.m. Mountain Daylight Savings Time.**

The toll-free telephone number the **members of the UHEAA Board of Directors** will dial is **(800) 403-2024** at the appointed time. A mechanical voice will ask you to dial in your **Participant Access Code 190714**. At that time, you will hear a beep; you will then be added to the conference call.

The duration of the call will be 1 hour or less. If you have any questions, please call Stacey Roberts at (801) 321-7211

1. Calling of the Roll and Welcome
2. Approval of Minutes of the January 25, 2001 Meeting
3. Motion for Executive Session at Next Meeting (if needed)
4. Reminder: Next Scheduled Board of Directors Meeting, **Tuesday, May 29, 2001**
5. Consideration of Board Reports

#1 ACTION	Money Management Investment Reports
#2 ACTION	Adoption of UHEAA Privacy Policy
#3 INFORMATION	Current Status and Plans for Systems Conversions

6. Other Information Items
7. Executive Session (if needed)

**UTAH HIGHER EDUCATION ASSISTANCE AUTHORITY
BOARD OF DIRECTORS
MINUTES**

**355 West North Temple
3 Triad Center, Suite 550
Salt Lake City, UT 84180-1205**

January 25, 2001

Members Present

Ms. Elva Barnes
Dr. Cecelia Foxley
Mr. Walter Gnemi
Mr. Brent Hoggan
Ms. Marla Kennedy
Ms. Peggy Leavitt
Ms. Judy LeCheminant
Dr. Stephen Nadauld
Mr. Chalmers Gail Norris
Dr. Norm Tarbox

UHEAA Staff Present

Mr. Matt Brace
Mr. Scott Brown
Ms. Nancy Caldwell
Mr. Ronell Crossley
Mr. Richard Davis
Ms. Cinda Eresuma
Mr. Brad Ewell
Mr. David Feitz
Mr. Scott Gilmore
Mr. Jim Ginos
Dr. Dale Hatch
Mr. Michael Johnson
Ms. Cathryn Judd
Ms. Geri Petersen
Ms. Lynda Reid
Ms. Stacey Roberts
Ms. Alice Schaelling
Ms. Kerry Stack

Others Present

Mr. William T. Evans, Assistant Attorney General
Ms. Teddi Safman, Office of the Commissioner for Higher Education
Mr. David Buhler, Office of the Commissioner for Higher Education

The meeting was called to order and a quorum was declared present.

Chairman Hoggan noted Mr. Alter, Ms. Clyde, Mr. Goddard, Mr. Grant, Dr. Peterson, Dr. Romesburg, Mr. Stringham, Ms. Sweeten and Mr. Young were excused. He welcomed Bill Evans from the Attorney General's Office.

Mr. Norris noted that in the October 25, 2000 UHEAA Board of Directors meeting minutes under Board Report Two, Attachment IV, the interest rates for taxable and tax-exempt bonds were reversed. The minutes should read 5.6% on the taxable bonds and 4.5% on the tax-exempt bonds.

It was moved by Ms. Barnes and seconded by Dr. Foxley to approve the minutes of the October 25, 2000 UHEAA Board of Directors meeting, as corrected. The motion carried unanimously.

It was moved by Ms. Barnes and seconded by Dr. Nadauld to hold an Executive Session, if needed, at the close of the March 6, 2001 UHEAA Board of Directors meeting. The motion carried unanimously.

The first item considered was Utah Higher Education Assistance Authority (UHEAA) Board Report One, Money Management Investment Reports.

Mr. Davis reviewed and discussed the investment reports and attachments for: the State Board of Regents Loan Purchase Program (LPP); the Utah Student Loan Guarantee Program (LGP); and the Utah Educational Savings Plan Trust (UESP) for the months of September, October and November 2000 and for the quarter ending September 30, 2000.

It was moved by Dr. Nadauld and seconded by Ms. Kennedy to adopt the recommendation that the Board approve the investment reports and attachments as presented. The motion carried unanimously.

The next item considered was UHEAA Board Report Two, Procurement for Provision of Major Outreach Web Site.

Mr. Feitz and Mr. Johnson presented the Board with an overview on-line demonstration of a Mentor™ web site, including features that allow students and potential students to plan, apply and pay for college.

Mr. Norris discussed associated issues such as estimated costs, school participation, target users and collaborating with the USHE/OCHE project, “Utah Advise,” that is currently under development. He also discussed various ways of advertising the web site to high school and junior high students through the schools, the Regents web site, and outreach networking efforts.

Dr. Nadauld asked about the estimated cost of implementing the web site

Mr. Norris replied that UHEAA would underwrite the cost at an estimate of \$500,000 in start-up costs and approximately \$300,000 per year in maintenance costs, including full-time staff to concentrate on the project. He added that the proposed initial participating schools would be the nine Collegiate schools, BYU, LDS Business College, Westminster and possibly some ATC schools, noting that the costs would fluctuate based on the number of schools participating.

Dr. Tarbox asked if Mentor™ has a transfer articulation guide built into the architecture of the web site.

Ms. Safman replied that there will be a “Transfer Articulation” button on the academic page that will link to a transfer articulation guide and integrate into the look and feel of the main web site screens. She said that Mentor™ has made assurances that they can accommodate those specific needs.

It was moved by Dr. Nadauld and seconded by Ms. Barnes to approve the recommendation that the Board of Directors endorse staff actions to prepare for procurement of outside support services to provide comprehensive, interactive, Internet-based outreach, counseling, career planning, college planning, financial planning, college application, and student financial aid information resources targeted to Utah residents and persons interested in or attending Utah higher education institutions, with the understanding a decision to enter into any contract for such services will take into account efforts to achieve a joint venture collaboration with the Utah Advise web site project currently under development by OCHE staff, and will be submitted for further action by the UHEAA Board. The motion carried unanimously.

The next item considered was UHEAA Board Report Three, Consideration of UESP Affiliation with UPromise or Similar Program Offering College Savings Credits.

Dr. Hatch discussed a program of rebates through UPromise or a similar program in which participants would earn rebates by making purchases through major name brand organizations. The rebates would be deposited into the participant's College Savings Program account.

Dr. Nadauld expressed concern over investing any money into this type of venture until the longevity of the organizations involved has been monitored.

Dr. Foxley noted that college savings programs participants are limited in the amount they can contribute each year per individual, for tax purposes. Therefore, if this program was implemented, the rebate contributions would have to be tracked. She asked if the majority of contributions into the Utah College Savings Program have been small monthly payments or annual lump sum payments.

Dr. Hatch responded that payment practices vary among the participants.

Ms. Peterson added that about half of the participants are utilizing the monthly direct deposit option.

Dr. Nadauld reminded the Board that third-party observers have named the Utah College Savings Program the best in the country and that the administration should be cautious in implementing any major changes in the program without adequate research.

It was moved by Ms. Barnes and seconded by Dr. Nadauld to approve a revised recommendation that the Board endorse UESP staff actions to continue to monitor the development of UPromise and other providers offering similar services and inform the Board of any future considerations. The motion carried unanimously.

The next item considered was UHEAA Board Report Four, Reappointment of Student Finance Subcommittee Members.

Chairman Hoggan noted that the proposed Student Finance Subcommittee consisted of the same membership as last year, but with the addition of two new members, Ms. Maria Sweeten and Ms. Elva Barnes.

It was moved by Ms. Kennedy and seconded by Mr. Gnemi to redesignate the membership of the

UHEAA Student Finance Subcommittee to consist of the following members: Mr. John B. Goddard, Chair; Regent David J. Grant; Regent L. Brent Hoggan (Finance and Facilities Committee Chair); Mr. Edward T. Alter (State Treasurer); Dr. Stephen A. Nadauld; Mr. Walter P. Gnemi; Mr. Fred Stringham; Associate Commissioner Norman C. Tarbox, Jr.; and Associate Commissioner Chalmers Gail Norris. The motion carried unanimously.

Congressman James Matheson and his associate, Stephanie Peterson, joined the Board meeting for a discussion.

Mr. Norris introduced the members of the UHEAA Board of Directors and key UHEAA staff present at the meeting. He presented a brief introductory overview, including UHEAA's relationship to the State Board of Regents, an abridged history, and UHEAA's purposes and strategies.

Dr. Foxley expressed concern over the increasing amount of student debt at graduation and stressed a need for more grant money.

Ms. Barnes said that UHEAA's loan programs are more beneficial to students than Federal Direct Student Loan programs, mainly because of effective customer service.

Mr. Nadauld endorsed the success of private/public partnerships such as UHEAA's with the Utah System of Higher Education. He indicated a need to raise the caps on funds to provide more volume in assisting students with their financial needs.

Congressman Matheson expressed his support of UHEAA's efforts and his desire to contribute to its success. He extended an invitation to the Board members to discuss any future issues that might benefit from his assistance.

It was moved by Ms. Barnes and seconded by Mr. Nadauld to adjourn the meeting.

The meeting was adjourned at 12:50 p.m.

Secretary

Date

FOR ACTION

UTAH HIGHER EDUCATION ASSISTANCE AUTHORITY

ADOPTION OF UHEAA PRIVACY POLICY

REPORT #2

April 10, 2001

INTRODUCTION

As a financial services organization, UHEAA is subject to the provisions of the Gramm-Leach-Bliley Act (P.L. 106-102) and U.S. Federal Trade Commission regulations pursuant to the Act (16 CFR Part 313). UHEAA is required to adopt a privacy policy pursuant to those regulations, and to implement the requirements of the Act and regulations no later than July 1, 2001. Board of Directors approval of the proposed UHEAA policy is requested.

BACKGROUND

An important policy issue for each financial services organization is whether or not the organization will use “nonpublic personal information” which it gathers or acquires about its customers to market the customers regarding different products, or will share such information with its affiliated organizations or with outside organizations. If so, the organization is required not only to disclose that intent to its customers but also to provide the customer with an opportunity to “opt out” from any such use of the customer’s nonpublic personal information. Notifications and opt out options are to be sent to each customer initially by July 1, 2001 for existing customer relationships, each time a new customer relationship initially is established, and once annually thereafter on currently existing relationships.

UHEAA is a single organization operating multiple financial services programs, and does not have affiliated organizations. We do not propose to use our customers’ nonpublic personal information for any of the purposes which would require us to provide the opt-out option. We propose only to use the information for purposes of administering the programs involved, which does include sharing the information with other organizations having a legally-authorized need to know, also in connection with administration of the program. (Example: sharing information between the guaranty agency and the school or lender, or the Federal Government.)

UHEAA Board Report #2
April 10, 2001–Page 2- Exhibit C

Given the recommended policy decision to use customers' nonpublic personal information only for administration of the program under which the customer relationship is established, the necessary policy and disclosure to customers are straightforward and fairly simple. The proposed policy as prepared and submitted for Utah Administrative Rulemaking is attached. The rule was submitted for publication in the Utah State Register with a comment period ending on May 15, 2001 and a proposed effective date of May 16, 2001. The publication is, of course, subject to further modification in the event the Board desires changes to be made from the published text. The rule also might need to be brought back for further Board consideration in the rather unlikely event that comments are received that make a case for modifications from the rule as published, and such an eventuality would of course require a later effective date after subsequent Board action. Because the policy simply complies directly with the language required by federal regulations, it is not considered likely that any changes will be justified or appropriate.

After the rule becomes effective, the required notifications will be scheduled to be sent to UHEAA's customers on the cycles required by law and regulations, beginning prior to July 1, 2001. For in-repayment loans owned by LPP, we will contract with the servicer (UNIPAC) to send the notifications on our behalf. For post-claim loans in the custody of LGP, and for UESP participant accounts, we will send the notifications directly. We will be doing further analysis to determine if customer relationships covered by the federal requirements are applicable in other programs, such as UCOPE or LEAP—probably not, because administration of those programs at the individual customer level is “decentralized” to participating schools, and UHEAA does not collect nonpublic personal information in most cases. There may be some limited exceptions because we do collect recipient rosters, for example, in the case of LEAP. The policy in the rulemaking notice is worded so that it will cover all programs administered by UHEAA.

RECOMMENDATION

It is the recommendation of the Executive Director that the Board of Directors approve the UHEAA Privacy Policy as contained in the attached Notice of Proposed Rule or Change.

Attachment

CGN/cgn

State of Utah
Administrative Rule Analysis

NOTICE OF PROPOSED RULE OR CHANGE

The agency identified below in box 1 provides notice of proposed rule or change pursuant to Utah Code Subsections 63-46a-4(2) and (4). Please address questions regarding information on this notice to the agency. The full text of all rule filings is published in the *Utah State Bulletin* unless excluded because of space constraints. The full text of all rule filings may also be inspected at the Division of Administrative Rules.

State of Utah Division of Administrative Rules (DAR) 4120 State Office Building; 450 North Main PO Box 141007 Salt Lake City, UT 84114-1007 Phone: (801) 538-3218, FAX: (801) 538-1773 State E-mail: asdomain.asitmain.rules	DAR file no.: <hr/> Utah Admin. Code ref. (R no.): R765-XXX <hr/> Date filed: <hr/> Time filed: <hr/> Received by:
1. Department: Regents (Board of) Agency: Administration Room no., building: Suite 550, 3 Triad Center Street address: 355 W. North Temple Mailing address: P.O. Box 45202 City, state ZIP: Salt Lake City, UT 84180-1205 Contact person: Cathryn Judd Telephone: (801) 321-7249 FAX: (801) 321-7299 Internet E-mail: cjudd@utahsbr.edu <p style="text-align: center; font-size: small;">(Interested persons may inspect this filing at the above address or at DAR between 8:00 a.m. and 5:00 p.m. on business days.)</p>	
2. Title of rule or section (catchline): Privacy Policy	
3. Type of notice: Proposed rules <input checked="" type="checkbox"/> New <input type="checkbox"/> Amendment <input type="checkbox"/> Repeal <input type="checkbox"/> Repeal and reenact <hr/> Other rule types <input type="checkbox"/> Change in proposed rule (changes original proposed rule file no.: <input type="text"/>)	
4. Purpose of the rule or reason for the change: To provide the terms of UHEAA's privacy policy concerning the disclosure of customer nonpublic personal information, as required by the Gramm-Leach-Bliley Act, a Federal law.	
5. This rule or change is a response to comments by the Administrative Rules Review Committee. <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
6. Summary of the rule or change: The rule states UHEAA's privacy policy concerning the disclosure of customers' nonpublic personal information. UHEAA does not disclose any nonpublic personal information about our customers or former customers to anyone, except as permitted by law.	
7. Aggregate anticipated cost or savings to: State budget: None. There are no appropriated state funds involved in student loan programs. Local government: None. Local governments are not involved in student loan programs Other persons: None. There is no cost to any other person or entity, other than UHEAA.	

NOTICE OF PROPOSED RULE OR CHANGE

8. Compliance costs for affected persons ("person" means any individual, partnership, corporation, association, governmental entity, or public or private organization of any character other than an agency):

There are no compliance costs for any person or entity, other than UHEAA..

9. Comments by the department head on the fiscal impact the rule may have on businesses:

There is no fiscal impact on businesses.

10. This rule or change is authorized or mandated by state law, and implements or interprets the following state and federal laws.

State code or constitution citations (required):	53B-12-101(6)
Federal citations (optional):	P.L. 106-102 (Gramm-Leach-Bliley Act) 16 CFR 313 (Privacy of Consumer Financial Information)

11. This rule or change adds or updates an incorporated reference (submit a copy to DAR): Yes No

Reference title and date of issue or edition:

12. The public may submit written or oral comments to the agency identified in box 1. (The public may also request a hearing by submitting a written request to the agency. The agency is required to hold a hearing if it receives requests from ten interested persons or from an association having not fewer than ten members. Additionally, the request must be received by the agency not more than 15 days after the publication of this rule in the *Utah State Bulletin*. See Section 63-46a-5 and Rule R15-1 for more information.)

Comments will be accepted until 5:00 p.m. on (mm/dd/yyyy):	5/15/2001	
A public hearing (optional) will be held on (mm/dd/yyyy):		at (time): <input style="width: 50px;" type="text"/>
at (place):	<input style="width: 90%; height: 20px;" type="text"/>	

13. This rule or change may become effective on (mm/dd/yyyy):

14. Indexing information - keywords (maximum of four, in lower case):

higher education, student loans*

15. Indexing information - affected industries (two-digit SIC codes):

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16. Attach a WordPerfect document containing the text of this rule or change (filename):

To the agency: Information requested on this form is required by Sections 63-46a-4, 5, 6, and 10. Incomplete forms may be returned to the agency for completion, possibly delaying publication in the *Utah State Bulletin*, and delaying the first possible effective date.

AGENCY AUTHORIZATION

Agency head or designee, and title:	Chalmers Gail Norris Associate Commissioner for Student Financial Aid and Executive Director of UHEAA	Date (mm/dd/yyyy):	04/02/2001

R765. Regents (Board of), Administration.

R765-XXX. Utah Higher Education Assistance Authority (UHEAA) Privacy Policy.

R765-XXX-1. Purpose.

The purpose of this rule is to provide the terms of UHEAA's privacy policy concerning the disclosure of customer nonpublic personal information, as required by federal regulation.

R765-XXX-2. References.

2.1 Utah Code. Title 53B, Utah System of Higher Education, Chapter 12.

2.2 U.S. Congress, Title IV of the Higher Education Act of 1965, as amended.

2.3 U.S. Federal Trade Commission. Code of Federal Regulations, 16 CFR Part 313.

2.4 P.L. 106-102, the Gramm-Leach-Bliley Act

R765-XXX-3. General.

3.1 UHEAA collects nonpublic personal information about customers from:

3.1.1 information received from customers on applications or other forms;

3.1.2 information from customer transactions with UHEAA, its affiliates or others; and

3.1.3 information received from a consumer reporting agency.

3.2 UHEAA does not disclose any nonpublic personal information about our customers or former customers to anyone, except as permitted by law.

3.3 UHEAA restricts access to nonpublic personal information about customers to those employees who need to know such information to provide products or services to customers. UHEAA maintains physical, electronic, and procedural safeguards that comply with federal regulations to guard customer nonpublic personal information.

KEY: higher education, student loans*

53B-12-101(6)

FOR INFORMATION

**UTAH HIGHER EDUCATION ASSISTANCE AUTHORITY
CURRENT STATUS AND PLANS FOR SYSTEMS CONVERSIONS**

REPORT #3

April 10, 2001

Very substantial progress has been and is being made in preparations and planning for the various major system conversions being undertaken by UHEAA. The process has been long and arduous but we are now entering the "final lap." Key staff members in all affected programs have been putting in increasingly substantial amounts of overtime, as have some of their counterparts at PHEAA.

The major systems, current status, and planned conversion dates (when in the future), are as follows:

1. OneLINK student loan guarantee system—

Conversion on May 31, 2001.

2. COMPASS student loan servicing system—

Conversion on May 31, 2001.

**3. OneLINK school internet processing and communication system
and related borrower direct access account lookup system**

Focus Group First meeting April 25, 2001.

Implementation for individual schools beginning

in the second week after OneLINK conversion.

4. Digital Imaging System—

Installed and operating successfully.

5. Predictive Autodialer System—

Installed and ready for activation with OneLINK

and COMPASS immediately after conversions.

6. UESP New System, Oracle-based LAN System—

**In final development and testing stages, may be ready
For conversion by the end of May also.**

The new systems will provide order of magnitude enhancements for the efficiency of UHEAA's internal program administration processes and also for our electronic networking and the turnaround times on transaction processing with schools and customers.

Program officers will be prepared to respond to questions from Board Members during the conference call meeting next Tuesday.

CGN/cgn

MEMORANDUM

April 12, 2001

TO: State Board of Regents

FROM: Cecelia H. Foxley

SUBJECT: Action: Consent Calendar, Finance and Facilities Committee

It is the recommendation of the Commissioner that the Regents approve the following items on the Finance and Facilities Committee Consent Calendar:

- 1. OCHE Monthly Investment Report (Attachment A).** Board Policy R541, Management and Reporting of Institutional Investments, requires approval of investment reports by the Board of Trustees or the Finance and Facilities Committee for the Office of the Commissioner. All operating funds of the Office of the Commissioner are invested with the University of Utah Cash Management Pool. The investment report for fiscal year 2000-2001 for the Office of the Commissioner is attached.
- 2. 2001-2002 Initial Work Programs (Attachment B).** "Work Program" is a term applied to revenue expenditure allotment schedules submitted to the State Division of Finance. Work programs serve as a basis for the disbursement of state appropriated funds to institutions. Attached is a summary of the initial work programs for 2001-2002.

Cecelia H. Foxley, Commissioner

CHF/NCT/BB
Attachments

MEMORANDUM

April 12, 2001

TO: State Board of Regents

FROM: Cecelia H. Foxley

SUBJECT: Utah State University–Second Tier Tuition Increase Proposal

Issue

Similar to the requests approved at the March 2001 meeting, Utah State University (USU) officials request Regent approval of a second tier tuition increase. This request marks the final action on tuition by the Regents for the 2001-2002 academic year.

Background

Prior to the 2001 Legislature, the Regents approved a 4 percent across-the-board tuition increase for all USHE institutions for 2001-2002 with the understanding that other possible increases would be considered following the Legislative Session. During the March 2001 meeting, Regents took action on a series of other tuition issues (Attachment 1). The first of these actions was to approve an additional 1.5 percent across-the-board increase. This brings the total across-the-board or first tier tuition increase for the 2001-2002 academic year to 5.5 percent.

As a second set of actions, the Board of Regents followed the direction established through its master planning process by approving a second tier tuition increase to address specific needs at the University of Utah, Weber State University, Southern Utah University, and Utah Valley State College. These institutions followed the procedures required by Regent Policy R511, Tuition Disclosure and Consultation, and Senate Bill 210, Higher Education Tuition Disclosure, by holding public hearings and soliciting student input on the second tier increases. All second tier increases were also within the limits established in appropriation intent language adopted by the 2001 Legislature.

A third action taken by the Regents in March included the approval of a differential tuition schedule for the University of Utah Graduate School of Architecture.

At the April 20th Regents meeting, USU officials will present their second tier tuition increase plan for approval by the Board of Regents. The University has planned a public hearing

on the Logan campus for Friday, April 13th, to seek student input on the increase. Legislative intent language allows USU to have a second tier increase of up to 4 percent.

As background on the discussion for second tier increases, the latest statistics on tuition in the WICHE region, as well as some other statistics on USHE tuition, have been included as Attachment 2.

Recommendation

It is the recommendation of the Commissioner that the Regents receive the second tier tuition increase plan of Utah State University, ask questions, and, if satisfied, approve the second tier tuition increase as appropriate.

Cecelia H. Foxley, Commissioner

CHF/NCT/BLM
Attachments

**Utah System of Higher Education
2001-2002 Tuition Increases**

Institution	2000-2001 Res/Ug Tuition	Preliminary First Tier Increase	Additional First Tier Increase	*Second Tier Increase	Total Tuition Increase	Fee Increase
UofU	\$2,371	4.00%	1.50%	1.30%	6.80%	2.80%
USU	\$1,947	4.00%	1.50%	TBD	5.50%	2.50%
WSU	\$1,670	4.00%	1.50%	1.50%	7.00%	4.00%
SUU	\$1,612	4.00%	1.50%	2.00%	7.50%	1.80%
SC	\$1,084	4.00%	1.50%		5.50%	0.00%
DSC	\$1,188	4.00%	1.50%		5.50%	0.00%
CEU	\$1,138	4.00%	1.50%		5.50%	0.00%
UVSC	\$1,362	4.00%	1.50%	7.00%	12.50%	6.30%
SLCC	\$1,362	4.00%	1.50%		5.50%	19.00%

* UofU - On upper-division and graduate students only

* USU - TBD on April 20th

* WSU - On all Students

* SUU - On residents undergraduate students only

*UVSC - On lower division students only

**Utah System of Higher Education
2001-2002 Tuition Increase
Comparison of WICHE Region Public Tuition and Fees for 2000-2001**

Table 1. Resident Undergraduate Tuition and Fees WICHE Comparisons

USHE Institution	Comparison Group Categories	Rank in Comparison Group	Utah Institution Tuit/Fees	Comparison Group Maximum Tuit/Fees	Comparison Group Minimum Tuit/Fees	Comparison Group Average ^{1/} Tuit/Fees	Utah Institution Percent of Maximum	Utah Institution Percent of Average
UofU	Rsrch & Doc.	25 of 38	\$2,897	\$5,211	\$1,776	\$3,240	0.56	0.89
USU	Rsrch & Doc.	33 of 38	\$2,403	\$5,211	\$1,776	\$3,240	0.46	0.74
WSU	Mstr & Bacc.	38 of 62	\$2,118	\$3,639	\$1,706	\$2,410	0.58	0.88
SUU	Mstr & Bacc.	39 of 62	\$2,066	\$3,639	\$1,706	\$2,410	0.57	0.86
Snow	Two-Year	84 of 235	\$1,354	\$2,088	\$352	\$1,436	0.65	0.94
Dixie ^{2/}	Two-Year	75 of 235	\$1,480	\$2,088	\$352	\$1,436	0.71	1.03
CEU	Two-Year	76 of 235	\$1,466	\$2,088	\$352	\$1,436	0.70	1.02
UVSC ^{2/}	Two-Year	49 of 235	\$1,682	\$2,088	\$352	\$1,436	0.81	1.17
SLCC	Two-Year	56 of 235	\$1,636	\$2,088	\$352	\$1,436	0.78	1.14

Table 2. Resident (General) Graduate Tuition and Fees WICHE Comparisons

USHE Institutions	Comparison Group Categories	Rank in Comparison Group	Utah Institution Tuit/Fees	Comparison Group Maximum Tuit/Fees	Comparison Group Minimum Tuit/Fees	Comparison Group Average ^{1/} Tuit/Fees	Utah Institution Percent of Maximum	Utah Institution Percent of Average
UofU	Rsrch & Doc.	32 of 38	\$2,656	\$7,056	\$1,664	\$3,971	0.38	0.67
USU	Rsrch & Doc.	33 of 38	\$2,451	\$7,056	\$1,664	\$3,971	0.35	0.62
WSU	Mstr & Bacc.	27 of 52	\$2,286	\$5,910	\$1,664	\$2,941	0.39	0.78
SUU	Mstr & Bacc.	28 of 52	\$2,222	\$5,910	\$1,664	\$2,941	0.38	0.76

Source: WICHE. *Tuition and Fees in Public Higher Education In the West 2000-2001. November 2000.*

Rank: USHE institution's tuition and fees ranked in comparison group (1 = highest tuition and fee level).

1/ Simple average.

2/ Lower division rates only are listed for Dixie and UVSC. Dixie's upper division equals SUU; UVSC's upper division equals WS

**Utah System of Higher Education
2001-2002 Tuition Increase
Comparison of WICHE Region Public Tuition and Fees for 2000-2001**

Table 3. Nonresident Undergraduate Tuition and Fees WICHE Comparisons

USHE Institutions	Comparison Group Categories	Rank in Comparison Group	Utah Institution Tuit/Fees	Comparison Group Maximum Tuit/Fees	Comparison Group Minimum Tuit/Fees	Comparison Group Average ^{1/} Tuit/Fees	Utah Institution Percent of Maximum	Utah Institution Percent of Average
UofU	Rsrch & Doc.	28 of 38	\$8,828	\$16,498	\$7,272	\$11,155	0.54	0.79
USU	Rsrch & Doc.	38 of 38	\$7,272	\$16,498	\$7,272	\$11,155	0.44	0.65
WSU	Mstr & Bacc.	59 of 62	\$6,294	\$12,075	\$3,387	\$8,418	0.52	0.75
SUU	Mstr & Bacc.	58 of 62	\$6,438	\$12,075	\$3,387	\$8,418	0.53	0.76
Snow	Two-Year	57 of 235	\$5,596	\$6,984	\$600	\$5,023	0.80	1.11
Dixie ^{2/}	Two-Year	66 of 235	\$5,476	\$6,984	\$600	\$5,023	0.78	1.09
CEU	Two-Year	82 of 235	\$5,089	\$6,984	\$600	\$5,023	0.73	1.01
UVSC ^{2/}	Two-Year	79 of 235	\$5,262	\$6,984	\$600	\$5,023	0.75	1.05
SLCC	Two-Year	81 of 235	\$5,130	\$6,984	\$600	\$5,023	0.73	1.02

Table 4. Nonresident (General) Graduate Tuition and Fees WICHE Comparisons

USHE Institutions	Comparison Group Categories	Rank in Comparison Group	Utah Institution Tuit/Fees	Comparison Group Maximum Tuit/Fees	Comparison Group Minimum Tuit/Fees	Comparison Group Average ^{1/} Tuit/Fees	Utah Institution Percent of Maximum	Utah Institution Percent of Average
UofU	Rsrch & Doc.	34 of 38	\$8,101	\$16,498	\$7,438	\$11,492	0.49	0.70
USU	Rsrch & Doc.	38 of 38	\$7,438	\$16,498	\$7,438	\$11,492	0.45	0.65
WSU	Mstr & Bacc.	52 of 52	\$6,878	\$13,905	\$6,878	\$9,333	0.49	0.74
SUU	Mstr & Bacc.	51 of 52	\$7,040	\$13,905	\$6,878	\$9,333	0.51	0.75

Source: WICHE. *Tuition and Fees in Public Higher Education In the West 2000-2001*. November 2000.

Rank: USHE institution's tuition and fees ranked in comparison group (1 = highest tuition and fee level).

1/ Simple average.

2/ Lower division rates only are listed for Dixie and UVSC. Dixie's upper division equals SUU; UVSC's upper division equals WS

Utah System of Higher Education
 2001-2002 Tuition Increase
Benchmark Inflation and Tuition Increase Information

Table 5, Tuition Increase History
USHE Resident and Nonresident Tuition Increases, 1989-90 to 2000-2001

	90-91	91-92	92-93	93-94	94-95	95-96	96-97	97-98	98-99	99-00	00-01
Resident Increases											
UU	7.0%	6.0%	6.0%	7.0%	5.0%	6.0%	0.0%	3.8%	2.7%	3.0%	4.0%
USU	7.0%	6.0%	6.0%	7.0%	7.0%	6.0%	0.0%	3.8%	2.7%	3.0%	4.0%
WSU	7.0%	6.0%	6.0%	7.0%	7.0%	6.0%	0.0%	3.8%	2.7%	3.0%	4.0%
SUU	7.0%	6.0%	6.0%	7.0%	7.0%	6.0%	0.0%	3.8%	2.7%	3.0%	5.8%
Snow	3.0%	4.0%	4.0%	4.0%	5.8%	5.0%	0.0%	3.8%	2.7%	3.0%	4.0%
Dixie	3.0%	3.0%	3.0%	4.0%	4.0%	0.0%	0.0%	3.8%	2.7%	3.0%	4.0%
CEU	3.0%	4.0%	4.0%	4.0%	5.5%	5.0%	0.0%	3.8%	2.7%	3.0%	4.0%
UVSC	3.0%	4.0%	4.0%	4.0%	4.0%	3.0%	0.0%	3.8%	2.7%	3.0%	4.0%
SLCC	3.0%	3.0%	3.0%	4.0%	4.0%	3.0%	0.0%	3.8%	2.7%	3.0%	4.0%
USHE Average ^{1/}	4.8%	4.7%	4.7%	5.3%	5.5%	4.4%	0.0%	3.8%	2.7%	3.0%	4.2%
Nonresident Increases											
UU	7.0%	6.2%	8.2%	11.4%	7.6%	6.1%	0.0%	3.8%	2.7%	3.0%	4.0%
USU	7.0%	6.0%	6.0%	12.7%	11.3%	-2.0%	5.6%	3.8%	2.7%	3.0%	4.0%
WSU	6.0%	6.0%	10.0%	13.1%	14.0%	0.0%	0.0%	3.2%	2.8%	3.0%	4.0%
SUU	8.0%	6.0%	10.0%	15.2%	20.1%	0.0%	0.0%	3.8%	2.7%	3.0%	5.8%
Snow	7.0%	3.9%	44.6%	20.6%	5.8%	0.0%	0.0%	3.8%	2.7%	3.1%	4.0%
Dixie	2.9%	3.1%	18.1%	11.1%	14.7%	1.3%	0.0%	3.8%	2.7%	3.0%	4.0%
CEU	3.0%	4.0%	10.0%	15.0%	14.0%	8.5%	0.0%	3.8%	2.8%	6.3%	4.0%
UVSC	3.1%	3.9%	8.7%	8.6%	10.7%	4.0%	0.0%	3.8%	2.7%	3.0%	4.0%
SLCC	2.9%	3.6%	6.7%	7.3%	6.8%	5.0%	0.0%	3.7%	2.7%	3.0%	4.0%
USHE Average ^{1/}	4.8%	4.7%	13.6%	12.8%	11.7%	2.5%	0.6%	3.7%	2.7%	3.4%	4.2%

1/ Simple Average.

Table 6, Tuition Increase Revenue Impact
Impact of 1% and Proposed 5.5% Tuition Increase on Tuition Revenue

	UU (\$)	USU (\$)	WSU (\$)	SUU (\$)	Snow (\$)	Dixie (\$)	CEU (\$)	UVSC (\$)	SLCC (\$)	USHE Total (\$)
1% Increase Revenue	613,500	349,600	217,100	92,300	32,900	47,800	21,300	217,700	193,700	1,785,900
5.5% Increase Revenue	3,374,300	1,922,800	1,194,100	507,700	181,000	262,900	117,200	1,197,400	1,065,400	9,822,800

Table 7, Tuition Increase Rate Impact
Impact of 1% and Proposed 5.5% Tuition Increase on Full-time Tuition Rates

	UU (\$)	USU (\$)	WSU (\$)	SUU (\$)	Snow (\$)	Dixie ^{1/} (\$)	CEU (\$)	UVSC ^{1/} (\$)	SLCC (\$)	USHE Average ^{2/} (\$)
Resident Undergraduate										
00-01 Full-time Rate	2,371	1,947	1,670	1,612	1,084	1,188	1,138	1,362	1,362	1,526
1% Increase	24	19	17	16	11	12	11	14	14	15
5.5% Increase	130	107	92	89	60	65	63	75	75	84
Resident Graduate^{3/, 4/}										
00-01 Full-time Rate	1,871	1,700	1,724	1,768						1,766
1% Increase	19	17	17	18						18
5.5% Increase	103	94	95	97						97
Nonresident Undergraduate										
00-01 Full-time Rate	8,302	6,816	5,846	5,984	5,326	5,184	4,761	4,942	4,856	5,780
1% Increase	83	68	58	60	53	52	48	49	49	58
5.5% Increase	457	375	322	329	293	285	262	272	267	318
Nonresident Graduate^{3/, 4/}										
00-01 Full-time Rate	6,603	5,952	6,036	6,586						6,294
1% Increase	66	60	60	66						63
5.5% Increase	363	327	332	362						346

1/ Lower division rates only listed for Dixie and UVSC. Dixie's upper division equals SUU; UVSC's upper division equals WSU.

2/ Simple Average.

3/ General graduate tuition rates only, differential graduate tuition rates not included.

4/ Graduate tuitions are less than undergraduate because a full-time load for a graduate student (10 credits) is less than an undergraduate (15 credits).

MEMORANDUM

April 11, 2001

TO: State Board of Regents

FROM: Cecelia H. Foxley

SUBJECT: ATE Update

A verbal update will be presented at the Board meeting on Applied Technology Education and H.B. 34, Applied Technology Education Governance.

Cecelia H. Foxley, Commissioner

CHF:jc

MEMORANDUM

April 11, 2001

TO: State Board of Regents

FROM: Cecelia H. Foxley

SUBJECT: Engineering, Computer Science, and Technology Initiative Update

Issues

The 2001 Legislature approved SB61: *Enhancements to the State Systems of Public and Higher Education*, sponsored by Senator Lyle Hillyard. This legislation established an Engineering and Computer Science Initiative within the USHE which is intended to significantly increase the number of students in engineering, computer science, and related technology programs. A total of \$4 million was appropriated for the first year of the Initiative: \$1 million of ongoing funds to provide faculty incentives, \$2.5 million to purchase equipment, and \$500,000 to provide initial capital for a student loan program within the Initiative. These funds were allocated to the State Board of Regents' line item. A Technology Initiative Advisory Board appointed by Governor Leavitt was established that would make budgetary and programmatic recommendations to the Regents.

Critical budget, salary, and hiring decisions must be made by USHE institutions in the next few weeks that will influence their initial efforts to implement the Initiative. As the Board agenda is being prepared, the Advisory Board has not yet been appointed by the Governor, so arrangements have not yet been made for that Board to meet and make its budget recommendations to the Regents. If possible, the Advisory Board will be convened before the April 20th meeting of the Regents so that decisions about allocation of the funds can be made at that time.

The USHE Council of Engineering Deans met on March 22 and developed their recommendations for allocating Initiative funds to the 9 USHE colleges and universities. These recommendations will be presented to the Technology Initiative Advisory Board, which will make recommendations to the Board of Regents. The Deans felt that the focus of the Initiative should be on engineering, engineering technology, computer science, and computer technology programs. They agreed that programs in computer information systems (CIS) and business information systems (BIS) should not be included in the Initiative.

The Engineering Deans recommend that for the upcoming year, the allocation formula used for the last two Engineering Initiative funding cycles should be used to allocate both ongoing and one-time equipment funds. This recommendation is only for the 2001-2002 budget year, since the long-term

objectives of the Initiative will require significant modifications in that allocation. They also recognized that the Advisory Board would play a critical role in shaping future directions that the Initiative would take. The Deans agreed that if any institution was not able to provide a match for a portion of its on-going funds, up to 2.5 percent (\$87,500) would be allocated to SUU to support its new engineering program. The Regents approved the new engineering program at SUU “contingent upon funding being sufficient to start the program, and contingent upon a continuing exploration of SUU working collaboratively with Utah State University and the University of Utah.”

If the Engineering Deans’ recommendation is followed, the proposed allocation for 2001-2002 for each institution would be as follows:

<u>Institution</u>	<u>On-Going*</u>	<u>One-Time</u>
U of U (28%)	280,000	\$700,000
USU (19%)	190,000	475,000
WSU (13%)	130,000	325,000
SUU** (5%)	50,000	125,000
Snow (5%)	50,000	125,000
Dixie (5%)	50,000	125,000
CEU (5%)	50,000	125,000
UVSC (10%)	100,000	250,000
SLCC (10%)	100,000	250,000

*Requires one-to-one institutional match.

**Up to an additional 2.5% of funds (\$87,500) could be transferred to SUU if other institutions are unable to provide the required match for their portion of on-going funds.

At a meeting of USHE Business Deans, held a few days after the Engineering Deans had met, it was agreed that computer information systems and business information systems programs should be included in the Initiative. They noted that business courses are frequently cross-listed with computer science courses, and that there is a strong demand from technology companies for graduates from information system programs.

The Council of Presidents has reviewed the recommendations of both the Engineering and Business Deans. There seemed to be general agreement among the Presidents that the funding allocation recommended by the Engineering Deans was appropriate for the initial year of the Initiative. There was not a consensus on whether CIS or BIS programs ought to be included as part of the Initiative.

Background

The text of SB 61 is included as Attachment A. Its key provisions include:

- (1) Establishing a goal through the Initiative to double the number of graduates from USHE

institutions in engineering, computer science, and related technology by 2006 and triple the number of graduates by 2009.

- (2) Directing the Board to establish rules providing the criteria for those fields of study that qualify as "related technology."
- (3) Providing a component which improves the quality of instructional programs in engineering, computer science, and related technology by providing supplemental monies for equipment purchases (\$2.5 million).
- (4) Establishing a student loan and loan forgiveness program to encourage enrollment in programs included in the Initiative.
- (5) Assisting USHE institutions to hire and retain highly qualified faculty to teach in Initiative programs.
- (6) Increasing program capacity by funding new and renovated capital facilities, and funding for new engineering and computer science programs.
- (7) Creating a Technology Initiative Advisory Board to make recommendations to the Regents in its administration of the Initiative. The Advisory board is to include individuals appointed by the Governor from business and industry who have expertise in the areas of engineering, computer science, and related technologies.

Commissioner's Recommendation

This information is provided as background in preparation for the Board meeting. It is hoped that the Technology Initiative Advisory Board will have met and developed a funding recommendation for the Engineering, Computer Science, and Technology Initiative for the Regents to consider. If so, that recommendation will be hand-carried to the meeting.

Cecelia H. Foxley, Commissioner

CHF/MAP
Attachment

MEMORANDUM

April 11, 2001

TO: State Board of Regents
FROM: Cecelia H. Foxley
SUBJECT: Consent Calendar

It is the recommendation of the Commissioner that the Regents approve the following items on the Consent Calendar:

- A. Minutes – Approval of the Minutes of the Regular Meeting of the Utah State Board of Regents held March 15-16, 2001, at Dixie State College in St. George, Utah
- B. Grant Proposals - Approval to submit the following proposals:
 1. University of Utah - Comparative Genomics of Lyme Disease Spirochetes, \$2,209,898; Sherwood R. Casjens, Principal Investigator.
 2. University of Utah - Genetic and Developmental Mechanisms of Pediatric disease, \$2,160,000; Edward B. Clark, Principal Investigator.
 3. University of Utah - The University of Utah/ARM-UAV Cirrus Cloud Measurement Program: Revised Proposal, \$6,034,784; Gerald G. Mace, Principal Investigator.
 4. Utah State University - The Green Plan Organellar Genome Project: Phylogeny and Evolution, \$1,499,886; Paul G. Wolf, Principal Investigator.
 5. Utah State University - Teacher Education Anytime Anywhere Channel - TEAACH, \$1,162,290.59; Geoffrey G. Smith, Principal Investigator.
 6. Utah State University - To Operate Regional Resource Center, Region No. 5, Utah State University, \$1,178,833; John Copenhaver, Principal Investigator.
 7. Utah State University - Implementation of Western Region Sustainable Agriculture Research and Education (SARE) Plan, \$2,048,429; V. Philip Rasmussen, Principal Investigator.

8. Utah State University - Effects of Tactile-Kinesthetic Stimulation in the NICU, \$1,097,054; Vonda N. Roberts, Principal Investigator.
 9. College of Eastern Utah - Learning Anytime Anywhere Partnerships (LAAP), \$800,500; Jim Huffaker, Principal Investigator.
- C. Proposed Revisions to Policy R604, *New Century Scholarship*. Revisions to implement the changes established by the 2000 Legislature in H.B. 23, New Century Scholarship Amendments.
- D. Executive Session(s) — Approval to hold an executive session or sessions prior to or in connection with the meetings of the State Board of Regents to be held June 1, 2001, at the College of Eastern Utah, to consider property transactions, personnel issues, litigation, and such other matters permitted by the Utah Open and Public Meetings Act.

Cecelia H. Foxley, Commissioner

CHF:jc

Attachments

**MINUTES OF MEETING
UTAH STATE BOARD OF REGENTS
March 15-16, 2001**

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MINUTES OF MEETING
UTAH STATE BOARD OF REGENTS
DIXIE STATE COLLEGE OF UTAH
March 15-16, 2001

Regents Present

Charles E. Johnson, Chair
Aileen H. Clyde, Vice Chair
Pamela J. Atkinson
David J. Grant
L. Brent Hoggan
James S. Jardine
Robert W. Peterson
Winn L. Richards
Paul S. Rogers
Maria Sweeten (Thursday only)

Regents Excused

Karen H. Huntsman
Michael R. Jensen
David J. Jordan
E. George Mantes

Office of the Commissioner

Cecelia H. Foxley, Commissioner
David Buhler, Associate Commissioner for Public Relations
Michael A. Petersen, Associate Commissioner for Academic Affairs
Norm Tarbox, Associate Commissioner for Finance and Facilities
Chalmers Gail Norris, Associate Commissioner for Student Financial Aid
Joyce Cottrell, Executive Secretary
Harden R. Eyring, Executive Assistant
Linda Fife, Director of Academic Programs
Jerry H. Fullmer, Director of Information Systems
Edith Mitko, Director of Student Services and Minority Affairs
Phyllis C. Safman, Assistant Commissioner for Academic Affairs
Gary S. Wixom, Assistant Commissioner for Applied Technology Education and Special Projects

INSTITUTIONAL REPRESENTATIVES

University of Utah

J. Bernard Machen, President
Michael T. Benson, Special Assistant to the President

Paul T. Brinkman, Associate Vice President for Budget and Planning
Fred C. Esplin, Vice President for University Relations
Nancy Lyon, Assistant Vice President for University Relations and Government Affairs
Jess Dalton, Student Body President

Utah State University

Stan L. Albrecht, Executive Vice President and Provost
Lee H. Burke, Assistant to the President for Government Relations
Robert L. Gilliland, Vice President for Extension
Richard W. Jacobs, Budget Director
Patricia S. Terrell, Vice President for Student Services
Deanna D. Winn, Associate Dean, Teacher Education, Certification, Graduation

Weber State University

Paul H. Thompson, President
David Eisler, Provost
Christopher A. Clark, Institutional Analyst
Carol V. Gaskill, Director of Budget and Institutional Research
Allen F. Simkins, Vice President of Administrative Services

Southern Utah University

Steven D. Bennion, President
Idir Azoua, Assistant Professor of Engineering
Richard A. Dotson, Chair, Physical Science Department
Dorian G. Page, Associate Vice President and Treasurer, Administrative/Financial Services
Richard N. Kimball, Professor of Engineering
Desmond N. Penny, Professor of Physics
Jed Montgomery, Student

Snow College

Rick Wheeler, Interim President
Larry J. Christensen, Vice President for Administrative Services
Richard White, Vice President for Academic Affairs
Gary Arnoldson, Controller

Dixie State College

Robert C. Huddleston, President
William D. Fowler, Vice President for Student Services
Frank B. Lojko, Legislative Representative/Director of Institutional Research
Stanley J. Plewe, Vice President for Administration and Information Technology
Max H. Rose, Executive Vice President of Academics
Wendi Prince, Student Body President

Connor Shakespeare, Student Body President-elect
Del Renquist, Student Body Vice President of ICC
Sam Rushfork

College of Eastern Utah

Grace S. Jones, President
Raelene Allred, Vice President of Finance and Administrative Services
Karen Bliss, Dean of Institutional Advancement
Charles O. Foust, Vice President of Academic Affairs
Gail Glover, Dean of Administrative Services, San Juan Campus
Brad King, Dean of Students
Allison McKinstry, Student Body President

Utah Valley State College

Kerry D. Romesburg, President
Brad Cook, Vice President for College Relations
J. D. Davidson, Dean, Humanities, Arts and Social Sciences
Elaine Englehardt, Assistant Vice President for Academic Affairs
Briant Farnsworth, Associate Dean of Education
Dorine Jespersen
Oscar F. Jespersen, Jr., Chair, History Department
Linda L. Makin, Budget Director
Val Peterson, Associate Vice President for College Relations
Lucille Stoddard, Vice President for Academic Affairs
Ryan L. Thomas, Vice President for Student Services and Campus Computing
Charles A. Vogel, Chair, English Department
Douglas E. Warner, Executive Director, Budgets/Management Studies
Bradley A. Winn, Vice President for Student Services and Campus Planning
J. Karl Worthington, Associate Vice President for Academic Affairs
Melissa Seegmiller

Salt Lake Community College

H. Lynn Cundiff, President
Marjorie Carson, Vice President of Academic Services
Brent H. Goodfellow, Vice President of Community, State and National Affairs
Richard M. Rhodes, Vice President of Business Services
Daniel Bingham, Executive Dean, Larry H. Miller Campus
G. Wayne Boam, Vet/Med Program
Geoffrey Brugger, Executive Dean, South City Campus
Bill Laney, Director, Humanities and Science Education
Max S. Lowe, Interim Chair, Community Health Services Division
Laura Lowe

Paul Stark, Chair, Health Sciences Division

Representatives of the Media

Matt Canham, *Daily Utah Chronicle*

Havalah Gholdston, *Daily Herald*

Kirsten Stewart, *Salt Lake Tribune*

James Thalman, *Deseret News*

Others Present

Dave Adams, Chair, State Building Board

Representative David Clark

Boyd Garriott, Office of the Legislative Fiscal Analyst

Debra Headden, Office of the Legislative Fiscal Analyst

Senator John W. Hickman

David C. Jones, Office of the Attorney General

John Massey, Legislative Fiscal Analyst

Kenneth E. Nye, Program Director, DFCM

Brent D. Sheets, Kearns-Oquirrh Park Fitness Center

Dave Sorensen, Manufacturing Extension Partnership

Vernon C. Rowley, Governor's Deputy for Education

Representative Stephen Urquhart

Kevin Walthers, Office of the Legislative Fiscal Analyst

Thursday, March 15, 2001

COMMITTEE OF THE WHOLE

Chair Charles E. Johnson called the meeting of the State Board of Regents to order at 8:38 a.m. He welcomed the group, excused Regents Jensen, Jordan, Huntsman and Mantes, and announced that Regent Winn Richards had resigned from the Board because of health problems. He welcomed USU Provost Stan Albrecht, sitting in for President Hall, and Dixie Vice President Max Rose, who was representing President Huddleston while he met with his Board of Trustees.

Chair Johnson announced the schedule of USHE basketball teams who were competing in tournaments and commended the institutional presidents for the excellence of their athletes. He congratulated Regent Atkinson for receiving a Continuum of Caring Award and an award from the Humanitarian Foundation. Commissioner Foxley added her congratulations, calling Regent Atkinson "Utah's Mother Theresa."

Commissioner Foxley recognized Assistant Commissioner Gary Wixom's birthday. She announced that former Regent Brian Brown and his wife, Heather, were the very proud parents of a baby girl, Hannah Hinckley Brown, who was born on January 19. Brian has recently returned to work. The Commissioner announced that Brad Mortensen and his wife had become parents of a baby girl, Collette, on Tuesday, March 13.

Overview and Discussion of 2001 Legislative Session

Commissioner Foxley thanked everyone who had contributed to making this a successful legislative session. She thanked Regents and others who had attended the meetings at the Capitol when their schedules permitted. She thanked the Presidents for their crucial roles throughout the session. Commissioner Foxley gave special thanks to the legislative representatives, whom she asked to stand and be recognized. They, along with Dave Buhler, tracked the bills of importance to higher education throughout the session. She also expressed her appreciation to Harden Eyring for analyzing legislation of interest to higher education.

Commissioner Foxley commended Associate Commissioner Buhler for coming up with a higher education "Fact of the Day" which was given to each legislator every day of the session. The legislators were very appreciative of the opportunity to know more about higher education and the accomplishments of our institutions. On the 36th day of the session, the Fact of the Day recognized Utah Valley State College for their ethics curriculum. Commissioner Foxley thanked Dr. Elaine Englehardt, Vice President Lucille Stoddard and President Romesburg for their work on the ethics program. She offered her congratulations for the national acclaim which this program brought to the state and to the College.

Commissioner Foxley referred to Tab A of the agenda. Higher education received an increase in ongoing funds of 9.1 percent for 2001-2001. With the one-time money, the increase totals 12.8 percent, the largest increase higher education has received in several years. This funding was greatly appreciated and greatly needed by the institutions. The biggest disappointment was that enrollment growth was not fully funded (only 78.8%). This presents a challenge to the institutions. In capital facilities, nine projects were funded, in whole or in part, making it an outstanding year for higher education. Commissioner Foxley pointed out that higher education has about two-thirds of the state's buildings, so we are hopeful for substantial improvement funds through AR&I as well. UEN was also funded nicely. The Commissioner noted that higher education's share of tax funds slipped slightly, but with all of the one-time money and capital facilities projects, it was a banner year for higher education.

The Commissioner announced that Representative Afton Bradshaw, co-chair of the Legislative Higher Education Appropriations Subcommittee, had undergone knee surgery and was doing well. She noted legislation of interest to higher education and referred to Attachment 3 of Tab A.

Tuition. S.B. 210, Higher Education Tuition Disclosure, passed both houses and specifies a public hearing process for tuition increases. Institutions who were requesting a second-tier tuition increase worked

hard to meet the spirit of that bill for the current year. Regent Jardine asked if there was a conflict between the enacted legislation and the policy passed at the last Board meeting wherein the Regents requested guidelines from the Presidents in making tuition decisions. Commissioner Foxley replied that the Presidents work with their student body leaders in determining the best way to get the word out to their students. Regent Jardine asked the Presidents to give the Regents the benefit of their experience this year and to make recommendations for better methods in the future.

Capital Improvements. Chair Johnson pointed out that HB62, Operation and Maintenance of State Buildings, increased capital improvements project maximum from \$1 million to \$1.5 million and also raised the total amount of available improvement funding by a total of \$8 million beginning next year. This is of special significance to higher education.

Chair Johnson noted S.B. 187, Prohibiting State Departments and Entities from Employing Contract Lobbyists, and asked if this legislation applied to foundations. Harden Eyring said it would probably depend on whether or not foundations were meant to be an extension of the institution. Commissioner Foxley said Senator Evans had specifically intended that this legislation apply to higher education. She indicated that legislators preferred hearing directly from presidents.

Intent Language. Commissioner Foxley referred to Attachment 4, Intent Language. She said the Regents had wanted authority to make second tier tuition changes but had not imagined the proscriptive language which was ultimately included in the bill. She will report the outcome and discussions to the Legislative Higher Education Appropriations Subcommittee as requested. The formula funding language remained in the bill. In addition to the enrollment growth, the increase on the existing base was not fully funded. Chair Johnson suggested the Regents might want to look at formal legislation on the funding formula during the next legislative session.

Facilities. SUU will be working closely with DFCM and the Regents to acquire improvement funding for the projects listed on page 14 of Tab A. Commissioner Foxley remarked that it is highly unusual for the Legislature to be proscriptive on AR&I funding. She asked President Bennion to comment. President Bennion said he appreciated the support for older buildings. Old Main and Braithwaite Hall need to be strengthened because their unreinforced masonry walls place the students at risk. Other improvement issues were not addressed by the Legislature. It was thought there could be a savings of \$4 million in the various projects listed at the bottom of page 14.

Commissioner Foxley reported that the intent language for the Wasatch Front ATC encourages the continuation of the efforts SLCC has made with the Jordan School District. She said that while there were areas in which we would have liked more funding, it was overall a good year for higher education.

Underfunding of Enrollment. President Romesburg distributed a handout which showed the impact of funding enrollment growth at 78.8%. This translates to a total of 925 unfunded FTE students. The budget request for enrollment funding is for students who are currently in the system, not projections for the future. Since the system has gone to the new method of funding enrollment, this is the first time enrollment growth

has not been fully funded. This presents a challenge for the institutions who are trying to reduce their reliance on part-time faculty. The two solutions left to the schools are to either cap enrollments or rely even more heavily on adjunct faculty who do not receive benefits. President Romesburg asked about next year's students. Should the institutions accept more new students who may not be funded, or should they cap enrollments? He requested that this issue be one of the top priorities in planning for next year's budget request.

Chair Johnson said this could be a result of transitioning to a funding formula. Regent Atkin remarked that it appeared the institutions had an "access vs. quality" issue for the coming year. Regent Rogers suggested that the Board would have to decide whether or not the institutions should accept only those students whom the legislature was willing to fund. Chair Johnson said this was obviously the Regents' second choice; the course on which the Board has embarked would clearly be their first choice. He suggested the best solution would be to codify an enrollment funding formula, taking into account enrollment growth as well as existing students.

Regent Atkinson reminded the Regents that they had placed quality high on their list of goals during the strategic planning process of the past few years. She asked how greatly this would compromise quality for the coming fall semester. President Thompson said Weber would prefer to continue to take students rather than capping enrollments. He expressed his appreciation for the support higher education had received and suggested that we attempt to get the funding formula documented in statute.

Vice Chair Clyde said she was concerned that the Regents and general public did not fully understand the implications of this dilemma. This affects the decisions the Board must make in this meeting about adding new programs. Institutions have struggled with the issues of academic quality and adjunct faculty. Students will not receive the quality of education for which they are asked to pay if the present practice of underfunding enrollment continues.

Regent Jardine suggested that higher education do a better job of communicating with legislators so that they understand the need for fully funding enrollment growth. Chair Johnson said higher education representatives had been very consistent with the message that enrollment growth should be fully funded.

President Machen said UVSC's analysis was accurate. The institutions will have to bend to absorb this into the system. The real concern is that this will become a trend. Some legislators have asked that we reduce our dependence on growth funds. As we move forward with our projections for next year, we need to stress restoring funding for students who are already enrolled. Chair Johnson said next year that our number one issue might be catch-up funding for enrollment growth, and funding the formula would be the second priority.

President Bennion said there may be a legislative perception that all we worry about is enrollment growth for the institutions. While this is important, Utah has demographics which are solid. In this information age, the need for an education becomes even more critical. Access is very important.

Regent Jardine pointed out the wording in intent language which talks about reducing our reliance on growth funding. If the Legislature sees the formula as a mechanism to reduce enrollment funding, this is a misperception.

Commissioner Foxley said the formula is broader than just enrollment growth. When a formula is not fully funded, something has to be sacrificed. Unfortunately, this year's sacrifice was enrollment growth funding. If this state wants to have a well educated work force and a healthy economy, higher education must be funded.

Regent Rogers asked President Romesburg if he would assume any increase in student enrollment as he prepared his budget request for next year. President Romesburg responded that he would project the increase and rely more heavily on adjunct faculty. The institutions – particularly the community colleges – have a commitment to provide access to students wishing a higher education. However, quality must ultimately be addressed. We cannot continue to “water the soup.” Regent Rogers suggested that legislative leadership be involved in this dialogue before the budget request is prepared for next fall. Chair Johnson said the Legislative Higher Education Appropriations Subcommittee has funding the formula (including enrollment) on their agenda.

Regent Peterson said he was impressed with the efforts the students made to organize themselves and to be heard by the Regents. Students will be most affected and would really mobilize behind this plan. He strongly suggested including the students in the dialogue on enrollment. Regent Peterson said he thought the Legislature would listen to students who were actively interested.

Provost Albrecht expressed his appreciation for the funding appropriated to higher education. He suggested that the underfunding of our base budget and enrollment were more important than intent language. The base needs to be fully funded, as well as enrollment growth.

Tuition Issues for 2001-2002 Public Hearings

Commissioner Foxley called the Regents' attention to Tab B. The Commissioner's recommendation is that the first tier of tuition be increased to 5.5% (an increase of 1.5% to the 4% tuition increase already approved) in order to have a compensation package for the institutional employees comparable to other state employees. This is necessary because of the Legislature's policy and practice of requiring one-fourth of the compensation increase to be covered with tuition revenues. Commissioner Foxley said she and the Presidents agreed that an increase to 5.5% in tuition would be the best course so that USHE employees are treated on a par with other state employees. We are already less than competitive in what we are able to offer our faculty and staff. Chair Johnson noted that even with this increase, not every institution would be able to offer an overall 6% compensation increase. The Commissioner's recommendation would meet the spirit of the legislators' intent. He invited students and other concerned members of the audience to comment.

Regent Atkinson said the Regents had not had time to thoroughly review the information. She noted that an increase in fees was also being proposed. She cautioned the Regents to consider the total cost to the students when the 5.5% tuition increase is added to a second-tier increase and a corresponding increase in fees. Commissioner Foxley said a 5.5% increase at each institution would raise a student's tuition by the following amounts:

University of Utah – \$130	Dixie State College – \$65
Utah State University – \$107	College of Eastern Utah – \$63
Weber State University – \$92	Utah Valley State College – \$75
Southern Utah University – \$89	Salt Lake Community College – \$75
Snow College – \$60	

The Commissioner pointed out that the fees are recommended to the Board by the Presidents after consultation with students, and sometimes at the direct request of the students. She referred to the WICHE comparison shown on Attachment 2. Our four-year institutions are below the average of comparable institutions in the Western Region, and our two-year institutions are above the average of their comparison institutions. While none of the community college Presidents were requesting a second tier increase, their faculty and staff also need the compensation package to be funded.

Regent Sweeten moved the approval of a 5.5% across-the-board tuition increase within the USHE to match legislative appropriations for compensation for the 2001-2002 academic year. The motion was seconded by Regent Atkin.

Jed Montgomery, an SUU student, spoke in support of the increase. He said students are very concerned with quality and want to have good teachers in their classrooms. Students go to college where they can obtain the best education.

Regent Atkinson requested the total cost of tuition and fees when fee increases (Tab Q) were discussed by the Committee of the Whole. She applauded the Legislature for their actions to fund salary equity.

Vote was taken on the motion to increase tuition by 5.5%. It carried unanimously.

Regent Peterson suggested that an explanation of the requirement for 25% of compensation increases to be taken from tuition would enable students to better understand the reason for the additional tuition increase. Chair Johnson asked the Presidents to get this message to their students.

Following a short break, the meeting resumed with a discussion on second-tier tuition. Chair Johnson pointed out the proposed revisions to policy R510 (attachment 4). He proposed that §4.7 on page 3 of the policy be amended to read: “4.7. Summer School – Non-resident summer school students ~~shall~~ may be assessed the same tuition per credit hour or full-time load as that assessed resident students ~~during the regular academic year~~. This technical change was added to those already drafted designed to

accommodate second-tier tuition increases. **Regent Hoggan moved the approval of the changes to policy R510, including Chair Johnson’s suggested revision. The motion was seconded by Regent Atkin.**

Boyd Garriott referred to legislative intent language which stated, “It is the intent of the Legislature that any tuition surcharge increase not be across the board but be based on a differential system reflecting the cost of providing for the type of degree sought by the student.” He then referred to new §3.2 of policy R510 which reads, in part, “Second-tier tuition rate increases may apply to all programs equally or they may be different for specific programs.” Representative Goodfellow rose to say he had been a member of the Conference Committee which met to craft the intent language. He said his interpretation of the intent language would be “across the board” meant across the system rather than within an institution. President Thompson referred to the phrase “used to fund critical institutional needs” and said those needs may not be directly related to a specific program. He asked that the Presidents be allowed the flexibility to address critical needs on their campus as they arise. Commissioner Foxley said Representative Goodfellow’s interpretation was consistent with the language in the policy and with discussions with legislative leaders. She recommended that the Board approve the policy and continue discussions with the Legislative Higher Education Appropriations Committee and the Legislative Fiscal Analyst’s office.

Regent Jardine moved to amend the motion by deleting the second sentence in §3.2 of Policy R510. Regent Atkinson seconded the motion. The amendment was accepted by the maker and seconder of the original motion. Vote was taken, and the amended motion passed unanimously.

Second Tier Tuition Requests

University of Utah. President Machen said he was asking for no increase for lower division students. Revenues from the proposed increase will be divided between libraries and web-based student services, neither of which was funded by the Legislature. The proposed undergraduate tuition increase will be 5.5%, and upper division and graduate students will have a 6.8% increase (5.5% plus an additional 1.3%). A public hearing was held to obtain student input. This request was approved by the University’s Board of Trustees earlier in the week. **Regent Atkin moved, seconded by Vice Chair Clyde, that the University of Utah’s second tier tuition increase of 1.3% for undergraduate and graduate students. The motion carried unanimously.**

Southern Utah University. President Bennion reported a very positive experience in the hearings on his campus. There was not a large turnout at the institutional hearing but the result was positive support. Academic Computing has met with faculty and staff and proposed a \$30 fee increase per semester. That increase was not approved, but the discussion was vital. Mike Wasden, the Student Body President, suggested that the tuition surcharge be applied to technology rather than increasing fees so greatly. Scholarship dollars are generally counted in tuition but not as fees. President Bennion commended the students for their helpful insight. Tuition would not be across the board, but would be for resident

undergraduate students only. Major increases were made to the graduate resident tuition last year. **Regent Rogers moved, seconded by Regent Sweeten, that SUU's second tier tuition increase of 2% be approved.** Regent Hoggan asked if this met the requirements of the legislative intent language. President said it did, because every program on campus needed this support. He explained that two factors were driving this recommendation: (1) improved technological support for the quality of the students, and (2) overall funding for accreditation review and to move SUU closer to WSU's tuition level.

Mr. Garriott said the Legislature had appropriated \$250,000 for a study of platforms, integrated data systems, etc., for technological needs on USHE campuses. This includes communications and registration systems. Chair Johnson clarified that this was intended to include academic use. President Machen pointed out higher education had been asking for support for five years. Money appropriated for a study does not solve this year's problems. **Vote was taken on the motion, which carried unanimously.**

Utah Valley State College. President Romesburg distributed copies of the handout which was used for their public hearings. The information received much exposure. No students appeared at the campus hearing, which officials viewed as student approval because of the extensive discussions on campus. The increase was endorsed by the student body president. He explained that UVSC had two tuition levels – undergraduate, which is comparable with SLCC, and upper division, which is comparable with WSU. The College's long-term plan is to get to a single tuition rate over time. The proposed 7% addition of second tier tuition increase should generate \$1.6 million after deducting compensation match requirements. It would be used as follows: \$250,000 for advising, counseling, and library; \$150,000 for software license fees and computer leases; \$400,000 to increase adjunct faculty pay rate; and \$800,000 for new full-time faculty with emphasis on English, Mathematics, Behavioral Science, and Languages. The tuition increase would raise lower division tuition to \$1542 and upper division tuition to \$1786 for 2001-2002, which is an \$180 increase for lower division and \$116 for upper division students.

President Romesburg noted that the handout showed the programs in which over 50% of the courses were taught by adjunct faculty. Some areas, such as Languages and Behavioral Science, have far more than 50% of their classes in core subject areas taught by adjunct faculty. This has been addressed by the funding mechanism. The chart also showed student-to-staff ratios, which were also very high. The money from the tuition increase will be used to address long-standing problems on campus. President Romesburg pointed out the increase in Pell Grants and Hope Scholarships for the coming year. College officials feel this is the best way to meet those critical needs. They will not be able to hire ten more full-time faculty because enrollment growth was not fully funded. **Regent Atkin moved, seconded by Regent Rogers, that UVSC's second tier tuition increase of 7% or \$53 be approved. The motion carried unanimously.**

Weber State University. President Thompson said Weber was proposing a second tier tuition increase of 1.5%, or \$12 per semester. From this increase, \$325,000 will be generated to replace the University's student information system. The University does not know the total cost of replacing this system. The proposal received support from the students. The money will be banked with the anticipation

that it will be needed next year as the University begins to acquire the hardware and software to make this transition. Only one negative comment was received, which came from an International student. President Thompson pointed out non-resident tuition in Utah is very low when compared with other states around the country. The increase will apply to both resident and non-resident tuition. **Regent Atkin moved, seconded by Vice Chair Clyde, that WSU's second tier tuition increase of 1.5% be approved. The motion carried unanimously.**

Chair Johnson thanked the Regents for making these difficult decisions.

The meeting recessed for lunch at 11:35 a.m.

Planning Session re Applied Technology Education

The Board of Regents met jointly Thursday afternoon with representatives of public education for a joint discussion on applied technology education. Chair Johnson called the meeting to order at 1:13 p.m. and announced that the Utah State University basketball team had won their game in overtime. He welcomed the following individuals from public education: Janet A. Cannon, Vice Chair of the State Board of Education; Bette O. Arial, Denis Morrill, David Moss, Marilyn Shields, and Teresa Theurer, members of the State Board of Education; Superintendent Steven O. Laing and Associate Superintendent Robert O. Brems; Richard L. Maughan, Superintendent of Bridgerland ATC; Michael J. Bouwhuis, Superintendent of Davis ATC; C. Brent Wallis, Superintendent of Ogden-Weber ATC; Royanne Boyer, Superintendent of Mountainlands ATC; Bo Hall, Acting Superintendent of the Wasatch Front South ATC; and Brent Judd, Director of the Southwest Applied Technology Center Service Region (ATCSR).

On behalf of the Board of Regents, Chair Johnson expressed appreciation to the members of the State Board of Education for making the effort to come to St. George to exchange ideas about applied technology education governance. He read a message he had received from Kim Burningham, Chair of the State Board of Education, expressing his support for the joint meeting and the mutual desire to make sure that excellent ATE experiences are available throughout the state. Chair Johnson said the intent of the meeting was for both boards to better understand each other and understand the issues involved in governing applied technology education in Utah. He acknowledged that both boards had huge responsibilities to the citizens of this state.

As background, Chair Johnson explained that the students in question are the 16- to 18-year-olds who are completing their secondary education and beginning their higher education. The Joint Liaison Committee worked very hard on several issues – teacher preparation and concurrent enrollment, as well as ATE. However, as a committee, they did not have budgetary or governance responsibility. The Regents suggested to the Governor that a group be formed of higher education, public education, and legislative members to study this issue. As a result, the Legislature decided to form a legislative task force.

Chair Johnson affirmed that both systems are capable of governing applied technology education. However, the main focus of this discussion must be what is best for the students, their parents or guardians, and both systems of education in this state. Both boards would prefer to keep governance of ATE within

the two systems to forming a third board. He asked, how will the taxpayers be better off? What about employers?

He briefly explained why higher education believes they can handle ATE under the Utah System of Higher Education: (1) Moving ATE centers to applied technology colleges overcomes a question of credit or degrees for taking these classes. (2) There is efficiency in combining this into one system regardless of where ATE is delivered. (3) The open-entry, open-exit, competency-based method of delivery is already used in the System, and it can be used more extensively.

Superintendent Bouwhuis distributed a handout of his PowerPoint presentation. He explained the background which led to the development of applied technology centers. Students generally have many job offers before they complete their training program. Competencies are defined by employer teams in business and industry. The cost of training at an ATC is determined by membership hours and is 90 cents per membership hour. After a number of hours per week, training is basically free to the students. Between 1996 and 2000, the state average was 2,983,000 membership hours, with 55% of the training taken by adults and 45% by secondary students. A typical ATC class will include equal numbers of adults and high school students. Mr. Bouwhuis explained the composition and authority of ATC boards and outlined a typical school day. He expressed his appreciation to the State Board of Education for the flexibility and autonomy to create new and better educational systems.

Chair Johnson asked Vice Chair Cannon for an overview from the State Board of Education's perspective. Ms. Cannon explained that the SBE had been formed at statehood with 15 elected officials. They were given constitutional authority for the general control and governance of public education in Utah. Later the Board was given authority by statute to govern ATE. This is a high priority for the Board, and ATE funding has been given high priorities in their budget requests. Applied technology education provides training for those students who are interested in going into the work force by providing skills for employment. Vice Chair Cannon pointed out that high school students need vocational training. Without funding from ATE, high schools were not able to provide the necessary programs and facilities. The SBE is concerned with the ideas presented in the change of governance. The system is succeeding and is outstanding. Board members are concerned that applied technology colleges will become community colleges. There is a feeling that the needs of both high school and adult ATE students will become less important in college. The State Board of Education champions the needs of AT students.

President Cundiff stated that higher education believes the role of educating adults belongs to community colleges and universities. Sixty-five percent of all students in the United States are in community colleges. "Mission creep" has occurred where two-year colleges have become four-year colleges, but the same thing has happened in public education. Institutions which have been involved in training high school and adult students have taken on the role of offering credit. The Regents are extremely concerned about technical education and working skills for high school students and adults, as well as job skills for employment. The SLCC Board of Trustees is extremely concerned about ATE in Utah. President Cundiff and Chair Randall Mackey are involved on the Wasatch Front South ATC Board of Directors. This is a very productive relationship.

SLCC works closely with Bo Hall and the WFSATC to provide opportunities for every citizen in the Salt Lake Valley. Together they have made significant progress. An advisory board to the Board of Trustees for ATE issues has been considered. Salt Lake Community College works closely with five school districts, including Tooele, in the Wasatch South Front area, all of which offer ATE on their campus. SLCC provides buildings on two campuses for ATE programs in conjunction with local high schools. It is a “blended solution” within the Salt Lake Valley with value-added programs. There are 500-600 high school students taking classes at SLCC during any semester.

Salt Lake Community College’s programs are competency based, as are programs of other institutions. Sixty percent of SLCC’s ATE programs are open-entry, and all of them will be open-entry by next fall. All of them are open-exit. SLCC offers 30 non-credit ATE programs with 15,000 students enrolled. The College also offers 48 credit programs with 17,000 students enrolled throughout the Salt Lake Valley. Higher education officials constantly talk about ways to articulate with high school students and ATC Superintendents. Higher education nation-wide is looking at competency-based education. Competency-based programs are converted to credit for students in higher education.

President Cundiff pointed out that high school students pay no tuition for concurrent enrollment classes taken during the school year. At SLCC alone, this is a lost revenue of \$335,000 for non-credit students. SLCC does the majority of non-credit training in the Salt Lake Valley (more than 800,000 hours in non-credit ATC/ATE work with both students and secondary students), none of which is funded.

Associate Superintendent Brems said tuition has been an issue with ATCs and ATCSRs. Legislative funding has enabled them to provide services to secondary students on a tuition-free basis. Others are offered on a shared-tuition basis. School districts appreciate having services which do not cost the district or students extra money. Mr. Brems asked President Cundiff to speak about addressing these costs. President Cundiff said that in the concurrent enrollment program, the \$1500 per FTE which goes to SLCC is currently being split as follows – \$500 to SLCC, \$500 to the high school, and \$500 to whoever provides the instructor. In many cases, the high school provides the instructor. If high school students remain on their own campus and are taught by a high school teacher, they are not charged tuition at SLCC. On blended facilities, where the College offers classes at a high school, tuition is shared.

Commissioner Foxley referred to the handout entitled “Applied Technology Education (ATE) Characteristics of Community Colleges, ATCs and ATCSRs,” and said nine of the thirteen characteristics are in common; only four are different. She referred to another handout, “Applied Technology Education Programs by County / Programs Available to Adult Students,” which was prepared for the Joint Applied Technology Education Committee of the USHE Master Planning Task Force on Institutional Missions/Roles and System Configuration in 1998-1999. Representatives from public education were involved in the subcommittee, which was chaired by Regent Atkinson. Regent Atkinson said it had been an incredible process, and the task force learned that there was not a lot of duplication in the state. It was a great learning experience for everyone involved. The task force worked together as a team. By throwing out “turfdom,” they were able to come to agreement on major issues.

The Commissioner recognized Dr. Max Lowe, who was present with his wife, Laura. Dr. Lowe was instrumental in developing materials for the task force and was viewed as “Mr. ATE” throughout his educational career.

SBE Principles. Vice Chair Cannon said the State Board of Education had held a session on ATE. They felt that six principles should be incorporated within any ATE legislation. The six principles were Mission, Clientele, Student outcomes, Dedicated and protected funding, Participatory oversight and management at state and local levels, and Governance of ATE programs for secondary students in regional ATE programs under the State Board of Education. Ms. Cannon said it was important to the Board that secondary students be served at no cost (to the student or to the school district) and that adults should receive training at low cost. Open-entry, open-exit courses are also important, as are certificates of competency.

Associate Superintendent Brems asked what would happen to the constitutional responsibility of the State Board of Education for secondary students if the governance of ATE should shift from the State Board of Education to the State Board of Regents. Superintendent Laing said he had hoped John Fellows (State Office of Legislative Counsel) would be at the meeting to explain the legislation. He expressed his concern about the ability of ATE to be spread across the state equitably. The State Board of Education has been the Board for ATE and is invested in it administratively and philosophically.

It became clear last summer that the direction would be a governance structure which removed the ATCs from the direct control of the SBE. That direction became even more clear with the proposed legislation (SB 34, 1st Substitute). The SBE recognized that it was in their best interests to espouse the principles rather than governance. Decision makers are not talking about leaving the ATCs under the State Board of Education. The First Substitute incorporated these principles so the SBE took an unofficial position of support. Before the bill was introduced onto the House floor, a Third Substitute was introduced at the Governor’s request. It was not accepted as a substitute, and the First Substitute passed out of the House and went to the Senate. Finally, a Fifth Substitute was submitted and passed in the Senate but did not pass the House. Ultimately, the House suggested a special session and left the issue unresolved.

Superintendent Laing briefly reviewed the Fifth Substitute, which created a Utah College of Applied Technology (UCAT), modifying the State Board of Regents’ authority. He distributed a colored organizational chart which explained the structure and funding flow (“green line”) of the new UCAT. The UCAT Board would be required to submit an annual progress report each year. The new college would be charged to develop a new degree – the Associate of Applied Technology Degree – which would be transferable to other higher education institutions. In addition to the new UCAT, there would be stand-alone Applied Technology Colleges and Applied Technology Colleges within existing higher education institutions.

Regent Grant asked how the institutions would be funded for the coming year. Chair Johnson said that legislation was included in another bill. Dr. Brems referred to lines 625-634 of HB34S5 and explained that UCAT funding was not included. Custom fit, development and equipment funds were included in SB3. Debbie Headden noted that line 11 showed the existing money which would have been transferred, while

new money was put into SB3. Line 631 on page 11 shows that \$299,400 is SBR/ATCSR funding. The other items were included in the SBE budget for services which already existed. The money would be transferred to the administration of the new UCAT, had the Fifth Substitute passed in both houses.

Chair Johnson suggested analyzing the proposed legislation to see whether or not it met the State Board of Education's principles for secondary students. The SBE is mandated to provide education equitably. Higher education does not have a similar mandate but desires the same thing. Superintendent Laing said Governor Leavitt had stated that the Constitution specifies that the public education system in Utah should be free and open to all students. The speculation is that a legitimate legal argument could be made about whether or not the system is open to all students if comparable programs are not available to all institutions. Where ATCs do not exist, there is not a similar quality of training opportunities offered in other areas. Associate Superintendent Brems said the structure of the proposed UCAT would cover the entire state and be a hybrid. The expectation would remain that these services would be available across the state.

President Huddleston brought up the subject of competency-based ATE programs. Controlled entry and exit may be requested by the agency or company providing the payment for the training. Assistant Commissioner Wixom noted that every program which comes to the Board of Regents for approval includes a market-driven competency factor. Superintendent Maughan said he had just met with Boards and Superintendents and they were concerned that the mission of the ATCs remain viable to serve the secondary students.

Vice Chair Cannon reviewed the principles individually, and discussion ensued about whether or not the proposed legislation met those principles. Commissioner Foxley asked how equal access was currently being preserved for the high school students in the ATCs and ATCSRs. Superintendent Bouwhuis said the schools use the SEOP, a plan for high school students, to determine which programs were ATC-directed. Those students pre-enroll and are guaranteed a slot all year. Adult enrollment follows the college module. When programs are filled, waiting lists are created which are non-discriminatory. There are currently waiting lists in nursing programs and in computer technology programs. Superintendent Maughan said some students exit back to the high schools and slots are filled. It works out very well as long as open-entry, open-exit, competency-based goals are kept. Vice Chair Cannon said ATC budgets come through the State Board of Education. Chair Johnson credited public education for their funding formula in using membership hours.

Associate Superintendent Brems said guaranteeing access to high school students had not been a problem. The ability of the local board to monitor this access would be ensured by the representation of local school boards on the UCAT boards. Snow College South would return to an open-entry, open-exit model for high school students. The local board studied the issue and made recommendations. President Wheeler said the discussion had concerned trimesters. The schedule was more difficult to meet. Credit was another issue. Credit classes were not open-entry, open-exit but were offered on a semester system. Associate Superintendent Brems said there will still exist the possibility for students who document competency to be awarded credit.

Regent Atkinson asked Superintendent Laing what portions of the proposed bill gave the State Board of Education concern about protecting secondary students, both in access and funding. Dr. Lang said the Board's specific issue is with lines 364-367 (page 12) of the bill, which could be seen as an invitation to drift. The SBE did not have a chance to see this bill because it came out late in the session. Regent Atkinson asked if another statement providing that protection could meet that concern. Vice Chair Cannon said the Board's concern was about the ultimate outcome to secondary students with funding coming from a different stream.

Dr. Rowley referred to line 366 ("offer lower division courses for credit within the associate of applied technology degree program") and said Governor Leavitt felt strongly that the Associate of Applied Technology Degree should be offered strictly as a competency-based program. Credits should be offered in cooperation with colleges and universities. The Colleges of Applied Technology should not offer credit. Associate Superintendent Brems said there needs to be a "currency" indicating a level of competency in a program, and there should be an interchange between institutions.

Regent Grant asked if public education's governance stopped when students graduate from high school. Vice Chair Cannon said the State Board of Education was designated the State Board for Applied Technology Education because the governance continues.

President Thompson said Weber State University worked well with the board of the Ogden-Weber and Davis Applied Technology Centers. Weber's concern is that the changes made do not undermine that working relationship. Partnerships must be maintained in a productive way. Superintendent Wallis agreed that relationships are very positive between the Ogden-Weber and Davis ATCs and Weber State University. He said he was very supportive of the bill. He was amazed to watch the entire state come to terms with what needed to take place for the betterment of ATE throughout the state. He said he hoped to be able to better serve and add value to the high school students and adults working in the area through the new organizational structure.

President Cundiff said Salt Lake Community College and the Wasatch Front ATC had come very far in a short period of time in finding a suitable solution for a large number of people. The College cannot serve well without the WFS being a part of them, and vice versa. This is a real opportunity to find a solution everyone has been seeking for a long time. Director Hall agreed with President Cundiff's comments. Both entities view this as an exceptional opportunity and are firmly committed to work together to address the unique needs of the Salt Lake Valley. Legislation was enacted this year to address funding equities.

Superintendent Boyer said in her 11 years of experience in working with UVSC, no drift was attempted or occurred. A building was given to UVSC to teach concurrent classes to high school students from 7:40 a.m. until the end of the day. Other programs are offered on site in high schools. She said she was thrilled with what they were able to do for both high school students and adults.

Denis Morrill expressed his appreciation to President Cundiff for his willingness to work closely with public education. Regent Atkinson thanked Superintendent Laing and the ATC Superintendents for their help in clearing up misconceptions.

On behalf of the State Board of Regents, Chair Johnson thanked the Superintendents and members of the State Board of Education for their participation and their willingness to help bridge the understanding between the boards.

The meeting was recessed at 4:00 p.m. The Regents and Presidents enjoyed dinner at President Huddleston's home, where President and Mrs. Day were guests of honor. Chair Johnson, Commissioner Foxley, and President Thompson paid tribute to the Days and expressed their appreciation on behalf of the entire System.

Friday, March 16, 2001

Following meetings of the Board Committees, the Committee of the Whole was reconvened at 10:18 a.m. Chair Johnson announced that the SUU men's basketball team had put up a valiant battle the previous evening but had been defeated in the last few seconds of the game. He recognized Representatives Goodfellow, King, Winn, Clark and Urquardt.

Chair Johnson welcomed Dave Adams, Chair of the State Building Board. Commissioner Foxley thanked Mr. Adams for his part in making the capital facilities appropriations possible in the Legislative Session. Chair Adams praised the great leadership in the Legislature and thanked them and Governor Leavitt for their support. He also credited the staff of the USHE institutions and the Commissioner's staff. The Building Board's goal is to establish an ongoing method of funding the capital needs of the state. This could save the state millions of dollars through better organization. He suggested that the Board of Regents determine a building amount of approximately \$100 million per year on a five-year cycle to maintain a constant stream of funds to be able to build the facilities needed for the anticipated growth in higher education.

Reports of Board Committees

Finance and Facilities Committee

Chair Hoggan thanked Mr. Adams for his support with the Legislature and for his participation in the meetings of the Finance and Facilities Committee and the Committee of the Whole.

USHE – Capital Improvement Priorities for 2001-2002 (Tab R). Chair Hoggan said the Legislature had previously funded Capital Improvements annually at an amount equal to .9% of the replacement value of all state buildings. That amount has been raised to 1.1% over the next two years and moves the amount allocated to the Building Board to improve capital facilities from \$36.8 million to \$44.0

million in 2001. Higher Education has four million square feet of space which are over 50 years old. The Building Board will be meeting in May to approve funds for the next fiscal year. Mr. Adams acknowledged that his term on the Building Board would expire in May. He credited the previous leadership of Nolan Karras, Ron Halverson and Budd Scruggs.

University of Utah – Differential Tuition Proposal for 2001-2002 (Tab B, Attachment 3). Chair Hoggan said the proposed increase was for the Graduate School of Architecture. The increase would be \$45 per student credit hour, or an additional tuition charge of \$900 per year. The additional tuition would be applied in all three academic terms beginning in Summer Term 2001. **Chair Hoggan moved approval of the proposal. The motion was seconded by Regent Grant and carried unanimously.**

Dixie State College – Campus Master Plan (Tab O). Chair Hoggan said Dixie officials were requesting approval to acquire two parcels of property totaling .62 acres adjacent to the campus. No O&M was requested. Chair Hoggan referred to the Supplement to Tab O, Receipt of Gifted Property, and said the property was being donated to the College. **Chair Hoggan moved approval of the acquisition. The motion was seconded by Regent Grant and passed.**

Chair Hoggan pointed out the master plan brochure distributed to Board members. The location of the Graff-Eccles Fine Arts Center has not yet been decided; it will be determined in consultation with the DFCM. Vicki Wilson from IHC had made a presentation to the committee. IHC will be constructing a \$100 million health care facility in St. George. The company is having preliminary discussions with the College about partnering on that site with an educational component. The College would be able to use the clinical facilities of the hospital to train medical personnel. **Chair Hoggan moved approval of the Campus Master Plan, subject to the location of the Graff-Eccles Fine Arts Building possibly being different than shown on the master plan. The motion was seconded by Regent Atkin and carried unanimously.**

Salt Lake Community College – Lease of Downtown Instructional Facility (Tab P). Chair Hoggan noted that this item had been pulled from the agenda at the request of SLCC officials.

USHE – Proposed 2001-2002 Fee Increases (Tab Q). Chair Hoggan said the Board's general rule has been that if student fees increased at a greater rate than tuition, evidence of student support would be required. Two schools (UVSC and SLCC) are requesting increases greater than the tuition increase – UVSC, a 6.3% increase, and SLCC, a 19% increase. Chair Hoggan called attention to Attachment 1 which outlined the increases at each institution. The increases at UVSC and SLCC are for additions to the student centers on campus. President Cundiff said 60% of SLCC's increase would be used to pay off the bonds for the College Center renovation. Other components of the request were an increase in technology and athletics, as well as student activities. The students have also requested an increase in technology equipment. He said this had been SLCC's most active student group in several years. Student leaders had tried to survey all the students on all of the campuses and had unanimously recommended this increase. President Cundiff pointed out that SLCC has the second lowest level of fees in the System and with this increase, they will still be the third lowest. The SLCC Board of Trustees unanimously recommended this

increase as well. **Chair Grant moved approval of the proposed fee increases. The motion was seconded by Regent Atkin. Vote was taken on the motion, which carried unanimously.**

Report of the Audit Review Subcommittee (Tab S). Chair Hoggan noted that this item was for information only. No questions had been raised in committee.

Consent Calendar, Finance and Facilities Committee (Tab T). **On motion by Chair Hoggan and second by Regent Grant, the following items were approved on the Committee's Consent Calendar: (1) OCHE Monthly Investment Report and (2) UofU and USU Capital Facilities Delegation Report.**

Chair Johnson thanked Chair Hoggan for his report.

Academic and Applied Technology Education Committee

Chair Atkinson thanked Representative Urquardt for his attendance and support. She said the Committee had a very full agenda and a spirited discussion.

Weber State University – Bachelor of Science Degree in Computer and Design Graphics Technology (Tab D). The proposed CDGT program will prepare students to develop engineering and architectural drawings and models, technical manuals, reports, presentations, training textbooks, technical illustrations, interactive multimedia, and animations for industry. Industry representatives have indicated they would hire graduates who had obtained their B.S. in CDGT. Chair Atkinson said no concerns had been received, and the other institutions felt comfortable with this program. The Associate of Applied Science program moves smoothly into the Bachelor of Science program. **Regent Atkinson moved, seconded by Vice Chair Clyde, that the proposal be approved. The motion carried unanimously.**

Utah Valley State College – Bachelor of Arts Degree in History (Tab E). Chair Atkinson said this program would be phased in as new faculty are hired. Consultants from four institutions were involved in making the proposal. Questions raised about the number of Ph.D.-qualified faculty were answered satisfactorily by UVSC officials. There would be no impact on USU's History program. UVSC's program has the same number of credits as required by USU for a teaching degree. Other concerns were resolved. **Regent Atkinson moved, seconded by Regent Atkin, that the program be approved.** Regent Rogers asked about the faculty to be hired in light of the lack of complete enrollment funding. President Romesburg said that would not impact the core faculty for these programs. Funding issues arose on all of UVSC's requests in secondary education programs, prompting a lengthy discussion in committee. The College also discussed enrollment caps and concluded that it was not appropriate because the needs of these students are so great. New faculty would be teaching these programs, leaving adjunct faculty to teach math and English beginning classes. The committee was assured that funding was available for all of the programs to be implemented by using tuition and other funds appropriated to the College. President Romesburg noted that the Board had decided the previous day to continue to fund programs in hopes that the money would be available. Chair Johnson clarified that sufficient funding was available to implement

UVSC's new programs. Any curtailment in funding would be applied to subsequent programs. **Vote was taken on the motion, which carried unanimously.**

Regent Rogers moved that the Board advise the Legislature that the Regents view the 78.8% enrollment funding as a phase of the formula rather than future practice, and that based on that view, the Regents will continue to accept students and to grow academic programs based on market and student demand. Additionally, he moved that the Board advise the Legislature that the Regents can only continue to do so in anticipation that growth would be fully funded in the future. The motion was seconded by Regent Atkin. Regent Atkinson expressed the Regents' appreciation to the Legislature for the funding which was appropriated in the 2001 Session. **Vote was taken on the motion, which carried unanimously.**

Utah Valley State College – Bachelor of Science and Bachelor of Arts Degrees in Secondary Education (Tab F). Chair Atkinson said the program had been reviewed by other USHE teacher preparation programs and found to be based on a sound framework. She noted the five issues to be addressed: (1) decreased enrollment growth funding, (2) adequate placement of student teachers, (3) impact on existing system programs, (4) market for future graduates, and (5) accreditation. UVSC was able to satisfy all concerns satisfactorily. It was determined that the College would offer secondary education degrees in disciplines in which it already has or soon will have baccalaureate degrees. The committee had enjoyed a long and healthy discussion about this issue. The number of graduates coming from this program would not negatively impact graduates in other programs throughout the system. **Regent Atkinson moved approval of the Commissioner's recommendation, which included the requirement of annual reports for the first four years. Approval would be subject to approval of the State Office of Education. The motion was seconded by Vice Chair Clyde and carried unanimously.**

Utah Valley State College – Bachelor of Science Degree in Biology Education (Tab G). Chair Atkinson said concerns which were raised by Southern Utah University and the University of Utah had been answered satisfactorily. UVSC is currently negotiating with Utah State University, the University of Utah, and Brigham Young University for partnerships in various programs, including Biology Education. **Regent Atkinson moved approval of the program. The motion was seconded by Regent Atkin and carried unanimously.**

Utah Valley State College – Bachelor of Science Degree in Earth Science Education (Tab H). Chair Atkinson said one new methods course would be added. Other courses in this program are already being taught at UVSC. Representatives from the University of Utah and Utah State University made suggestions related to possible course work and field experience opportunities. **Regent Atkinson moved approval of the program. The motion was seconded by Vice Chair Clyde and carried unanimously.**

Utah Valley State College – Bachelor of Science and Bachelor of Arts Degrees in English Education (Tab I). Chair Atkinson said this program was built upon the foundation of the recently approved baccalaureate degree in English. Two new methods courses will be developed. Other courses

are already being taught at UVSC. With the growth of schools and population in Utah County, there will be no difficulty in placing student teachers who graduate from this program. The questions raised by SUU were satisfactorily addressed. **Chair Atkinson moved approval of the program. The motion was seconded by Regent Atkin and carried unanimously.**

Salt Lake Community College – Veterinary Technician Associate of Applied Science Degree (Tab J). Chair Atkinson said there was no similar program in the state. This is a technician program as opposed to a technician assistant. Only six states do not have a license component. The Board of Regents has a policy limiting credits for A.A.S. degrees to 69. However, 73 credits would be required for this degree. The program will be taught on the College's Jordan Campus and is supported throughout the state. **Regent Atkinson moved program approval. The motion was seconded by Vice Chair Clyde and carried unanimously.**

Salt Lake Community College – Fitness Technician Associate of Applied Science Degree (Tab K). Chair Atkinson said there had been difficulty finding people to fill these positions. Companies would rather hire technicians who have completed an A.A.S. degree. Regent Hoggan asked what kind of salary was being paid to graduates of this program. President Cundiff said beginning salaries generally ranged from \$28,000 to \$32,000. Vice Chair Clyde noted this was more than is paid to beginning teachers in Utah. **Chair Atkinson moved approval of the program. The motion was seconded by Regent Atkin and carried unanimously.**

Southern Utah University – Bachelor of Science Degree in Engineering (Tab L). Chair Atkinson said the committee had moved this item to action status. **She moved that the item be moved to action by the Board. The motion was seconded by Vice Chair Clyde and carried unanimously.** Chair Atkinson explained that this program would build on the background of the Pre-Engineering and Engineering Technology programs at SUU. It fills a unique niche. It would not be specialized but would meet the needs of small and medium-sized companies. Funding would require reallocation and some new funding. After salaries for faculty and staff, this program was the University's top funding priority. The committee heard a presentation from David Sorensen of the Utah Manufacturing Extension Partnership (MEP), who discussed the need for the program in terms of small or medium-sized companies. Students need to be advised that other courses may be required to prepare them for graduate school. University of Utah officials wanted to make sure students were not misled on the type of degree program being offered.

Vice Chair Clyde said there was strong need in industry for graduates of this program. She asked if this would be practical for a University Center model and if the University was able to adequately inform students of the nature of the degree. President Bennion said he would not prefer a University Center model. There are no teacher outreach programs in Engineering throughout the state. Large engineering programs at the research universities focus on grants and research. This is a good program to fill the void. President Machen said the concerns of the University of Utah had to do with a full understanding by employers about what they are hiring, as well as a full understanding by students of the skills attained.

Vice Chair Jardine referred to the Governor's Initiative and said money would be appropriated to the Regents to allocate within the System on the recommendation of a Technology Initiative advisory committee. Commissioner Foxley said the Engineering and Technology Initiative (SB 61) had originally earmarked \$500,000 for new programs. That piece of the bill was not funded. Regent Jardine asked President Bennion if the University could support this program if state funding did not become available. President Bennion said SUU would need some money from the Initiative. Commissioner Foxley said Chair Johnson had raised a question in committee around a University Center model. This has not been explored with the other institutions.

Regent Rogers moved that the program be approved and that the title of the program be changed to "Integrated" Engineering. The motion was seconded by Regent Atkin. Chair Johnson explained that he would not be voting for the program for a variety of reasons. SUU has always done everything with quality. They have a good reputation for the quality of their programs, and that reputation should be preserved. Also, there is a University Center model in the System which is intended to operate in institutions where they are not capable of financing certain programs. The University Center model is used to incubate new programs. A transition would take place at a future date when all of the issues were covered.

Regent Grant said his company would benefit greatly from the passage of this proposal by hiring graduates with enhanced analytical abilities.

Chair Atkinson offered a substitute motion, that the questions raised regarding the University Center model and funding be investigated and that the proposal come back for action on April 20. The motion was seconded by Vice Chair Clyde.

Associate Commissioner Petersen said the Engineering Deans would meet in April. They have worked closely together in the past to allocate prior Engineering Initiative funds or to propose an allocation to be adopted by the Board. The challenge this year is that SB61 created an advisory council whose membership has not been created yet. For that Board to reach some decision on allocation, the process could take several months. Associate Commissioner Petersen said it was unlikely that a recommendation would be forthcoming from the advisory council prior to the April meeting. President Machen said the Engineering Deans have to hire faculty for next fall. Funding needs to be set by next month in order for the Engineering Initiative to be implemented.

Chair Atkinson modified her substitute motion. She moved that the Board approve the program request, contingent upon funding being sufficient to start the program, and contingent upon a continuing exploration of Southern Utah University working collaboratively with Utah State University and the University of Utah. Regent Hoggan seconded the motion.

Vice Chair Jardine said he supported Regent Atkinson's motion but he did not believe a University Center model would work. He asked that a report be made to the Board of the collaborate efforts of Southern Utah University, Utah State University and the University of Utah.

Vote was taken on the motion by a show of hands. The motion carried with one opposing vote.

Information Calendar, Academic and Applied Technology Education Committee (Tab M). Chair Atkinson said the items on the Information Calendar had been approved by the institutional boards of trustees and required no Regent action.

Consent Calendar, Academic and Applied Technology Education Committee (Tab N). Chair Atkinson said the Petroleum Research Center (PERC) at the University of Utah would continue the University's long-standing tradition for high-quality research in fossil fuel technology. In May 2000 the PERC was named a State of Utah Center of Excellence in recognition of its contributions to the petroleum industry in Utah and its potential for generating new techniques and software products of commercial value to the petroleum industry worldwide. **Chair Atkinson moved approval of the Petroleum Research Center. The motion was seconded by Vice Chair Clyde and carried unanimously.**

Chair Johnson thanked Chair Atkinson for her informative report.

General Consent Calendar

On approval by Vice Chair Clyde and second by Regent Atkin, the following items were approved on the General Consent Calendar (Tab U):

- A. Minutes – Approval of the Minutes of the Regular Meeting of the Utah State Board of Regents held February 16, 2001, at the State Capitol in Salt Lake City, Utah.
- B. Grant Proposals - Approval to submit the following proposals:
 - 1. University of Utah - Itr/Ap-Advanced Computational Technique for Biomedical Applications & Safety Assessment of Electromagnetic Fields, \$2,637,759; Om P. Gandhi, Principal Investigator.
 - 2. University of Utah - Program for Computational Function Imaging and Visualization: Tools for Image Processing and Fusion, Inter. Visualization , and Invers Problems, \$2,001,260; Christopher Johnson, Principal Investigator.
 - 3. University of Utah - Information Technology Infrastructure for the Modeling of Mesostructured Materials, \$4,637,550; Grant D. Smith, Principal Investigator.
 - 4. University of Utah - Itr,Sy: Cardioscope: Computational Bioengineering of the Heart, \$8,000,852; Christopher Johnson, Principal Investigator.

5. University of Utah - Injection and Scattering of Polarized Spins at Nanoscale Polymer Interfaces, \$8000,852; Joel S. Millner, Principal Investigator.
6. University of Utah - Creation of an Enhanced Geothermal System through Hydraulic and Thermal Stimulation, \$4,097,297; Peter E. Rose, Principal Investigator.
7. University of Utah - Gene Targeting in Plants, \$2,316,727; Gary N. Drews, Principal Investigator.
8. University of Utah - Iger: Cross-Disciplinary Training Program in Mathematical Biology, \$2,695,552; James P. Keener, Principal Investigator.
9. University of Utah - Science and Development of High Energy Particle detectors Exploiting Atmospheric Phenomena, \$3,269,603, Pierre V. Sokolsky, Principal Investigator.
10. University of Utah - Multidisciplinary Cancer Research Training Program, \$2,201,315; Mary C. Beckerle, Principal Investigator.
11. University of Utah - Cancers Initiative for Colorectal Cancer, \$3,313,516; Joseph V. Simone, Principal Investigator.
12. University of Utah - University of Utah HCOP, \$2,108,330, Lorris A. Betz, Principal Investigator.
13. Utah State University - 01-02-Pell, \$10,000,000; Judy Lecheminant, Principal Investigator.
14. Utah State University -TARPS CD – Truman Support, \$1,601,875; Niel Holt, Principal Investigator.
15. Utah State University - RAMOS Documentation Task, \$1,296,941, Tom Humpherys, Principal Investigator.
16. Utah State University - NAVIS JPEG 2000 Enhancements, \$1,499,549; Niel Holt, Principal Investigator.
17. Utah State University - Influence of Stream-Lake Landscapes on Nitrogen Transport and Ecosystems Function in Alpine Watersheds, \$1,498,751; Wayne Wurtsbaugh, Principal Investigator.

18. Utah State University - Phosphoinositide Regulation of Protein Secretion, \$1067,500;
Daryll B. DeWald, Principal Investigator.

- C. Executive Session(s) — Approval to hold an executive session or sessions prior to or in connection with the meetings of the State Board of Regents to be held April 20, 2001, at the College of Eastern Utah, to consider property transactions, personnel issues, litigation, and such other matters permitted by the Utah Open and Public Meetings Act.

Adjournment

Chair Johnson thanked President Huddleston and his staff for the excellent food and warm hospitality.

Commissioner Foxley called attention to the commencement schedule in the Regents' folders and asked the Regents to let Joyce know which commencement exercises they would be attending this year.

The meeting was adjourned at 12:05 p.m.

Joyce Cottrell CPS
Executive Secretary

Date Approved

R604, New Century Scholarship

R604-1. Purpose

To provide policy and procedures for the administration of the New Century Scholarship which will be awarded to high school graduates who have accelerated their education process and have completed the requirements for an associate degree prior to September 1 of the same year they qualify to graduate from high school.

R604-2. References

2.1. [53B-8-105](#), Utah Code Annotated 1953

R604-3. Definitions

3.1. **"Program"** - New Century Scholarship program

3.2. **"Awards"** - New Century Scholarship funds which provide payment ~~[equal]~~ up to 75% of recipient's tuition costs

3.3. **"SBR"** - State Board of Regents

3.4. **"Recipient"** - A Utah resident who has accelerated his or her education process and, prior to September 1 of the year he or she graduates from a regionally accredited Utah high school, completes the requirements for an associate degree.

3.5. **"Associate Degree"** - An Associate of Arts, Associate of Science, or Associate of Applied Science degree, or equivalent academic requirements, as received from or verified by a regionally accredited Utah public college or university, provided that if the college or university does not offer the associate degree, the requirement can be met if the institution's registrar verifies that the student has completed academic requirements equivalent to an associate degree prior to the September 1 deadline.

R604-4. Conditions of the Scholarship

4.1. **Program Terms** - The program scholarship may be used at any ~~[of Utah's state-operated institutions of]~~ higher education institution in the state accredited by the Northwest Association of Schools and Colleges that [offer] offers baccalaureate programs. If used at an institution within the state system of higher education, the scholarship awards under this program are equal in value to 75% of the actual tuition costs. If used at an institution not within the state system of higher education,

the scholarship is equal in value to 75% of the tuition costs at the institution, not to exceed 75% of the average tuition costs at the state system baccalaureate granting institutions. [and are] Each scholarship is valid for up to two years of full-time equivalent enrollment (60 semester credit hours) or until the requirements of a baccalaureate degree has been met, whichever is shorter. A student who has not used the award in its entirety within four years after his or her graduation from high school will become ineligible to receive a program award.

4.2. Applicant Qualification - To qualify for the award, an applicant must have graduated from a regionally accredited Utah high school in 1999 or later, and must have completed the requirements for an associate degree by September 1 of the year he or she graduated from high school.

4.3. Accredited College or University - The associate degree or verification of equivalent academic requirements must be received from a regionally accredited Utah public institution, provided the institution's academic on-campus residency requirements, if any, will not affect a student's eligibility for the scholarship if the institution's registrar's office verifies that the student has completed the necessary class credits for an associate degree.

4.4. Eligible Institutions - The award may be used at any ~~[of Utah's state-operated institutions of higher education that offer baccalaureate programs]~~ higher education institution in the state accredited by the Northwest Association of Schools and Colleges that offers baccalaureate programs.

4.5. Dual Enrollment - The award may be used at more than one of Utah's eligible institutions within the same semester.

4.6. Student Transfer - The award may be transferred to a different eligible Utah institution upon the request of the student.

R604-5. Application Procedures

5.1. Application Contact - Qualifying students may apply for the award through a high school counselor or the SBR office.

5.2. Support Documentation - Applicants must provide documentation verifying their date of graduation from a regionally accredited Utah high school, a copy of their college transcript, and prior to receiving the award, a signed affidavit from the registrar's office at the college or university in which the associate degree was completed verifying that all requirements have been met for an associate degree by September 1 of the year of high school graduation. If the student is enrolled at an institution which does not offer an associate degree, the registrar must verify that the applicant has completed the equivalent academic requirements.

5.3. Application Deadline - Applications must be received by the SBR office no later than thirty days prior to the academic term for which the recipient wishes to receive the award. Verifying documentation shall be provided as soon as reasonably possible.

5.4. Award Eligibility - If the recipient fails to meet the requirements of an associate degree by the September 1 deadline, or is not able to provide the required documentation in a timely manner, the program award will not be made.

R604-6. Distribution of Award Funds

6.1. Amount of Award - If used at an institution within the state system of higher education, the amount of the scholarship will be equal to 75% of the gross total cost of tuition based on the number of hours the student is enrolled. If used at an institution not within the state system of higher education, the scholarship is equal in value to 75% of the tuition costs at the institution, not to exceed 75% of the average tuition costs at the baccalaureate degree granting institutions within the state system of higher education. Tuition waivers, financial aid, or other scholarships will not affect the total award amount.

6.2. Tuition Documentation - The award recipient shall submit to SBR a copy of the tuition invoice or class schedule verifying the number of hours enrolled. SBR will calculate the amount of the award based on the published tuition costs at the enrolled institution(s).

6.3. Award Payable to Institution - The scholarship award will be made payable to the institution. The institution shall pay over to the recipient any excess award funds not required for tuition payments. Award funds should be used for higher education expenses including tuition, fees, books, supplies and equipment required for courses of instruction.

6.4. Added Hours after Award - The award will be increased to equal 75% of the tuition costs of any hours added in the semester after the initial award has been made. Recipient shall submit to SBR a copy of the tuition invoice or class schedule verifying the added hours before a supplemental award is made.

6.5. Dropped Hours after Award - If a student drops hours which were included in calculating the award amount, either the subsequent semester award will be reduced accordingly, or the student shall repay the excess award amount to SBR.

R604-7. Continuing Eligibility

7.1. Reasonable Progress toward Degree Completion - The SBR may cancel the scholarship at any time if the student fails to maintain a "B average" for two consecutive semesters; or make reasonable progress toward the completion of a baccalaureate degree. Each semester, the recipient must submit to SBR a copy of his or her grades to verify that he or she is meeting the required grade point average and the established reasonable progress standards at the enrolled institution.

7.2. No Awards after Four Years - The SBR will not make an award to a recipient for an academic term that begins more than four years after the recipient's high school graduation.

7.3. No Guarantee of Degree Completion - A Century Scholarship award does not guarantee that the recipient will complete his or her baccalaureate program within the recipient's scholarship eligibility period.

R604-8. Leave of Absence

8.1. Does Not Extend Time - A leave of absence will not extend the time limits of the scholarship. The scholarship must be used in its entirety for academic terms which begin within four years after the recipient's graduation from high school.

(Adopted June 4, 1999, amended July 12, 1999. Amendments proposed for the April 2001 board meeting.)

MEMORANDUM

April 11, 2001

TO: State Board of Regents
FROM: Cecelia H. Foxley
SUBJECT: Planning Issues

Our planning session will consist of three parts:

1. A report on the Utah Census 2000, presented by Lisa Hillman, Research Analyst in the Governor's Office of Planning and Budget, and a discussion of the implications for higher education.
2. A review and discussion of some of the key commitments and issues in our Master Plan 2000.

For this part of our planning session, we will break into small groups for approximately 1½ hours and then reconvene into the committee of the whole for a report out of the small groups. Small group assignments are contained in Attachment 1, and the discussion materials are contained in Attachment 2.

3. An update of the AdviseUtah web site, presented by Assistant Commissioner Phyllis (Teddi) Safman.

We anticipate that this session will help us look to the future and the steps and actions needed in order to make the progress we are committed to as a system. In preparation for our discussions, please review the attachments to this memorandum.

Cecelia H. Foxley, Commissioner

Attachments

BREAKOUT GROUPS FOR MASTER PLANNING DISCUSSIONS

Group 1 **(Multipurpose Room)**

Group 2 **(Alumni Room)**

Group 3 **(Board Room)**

Presidents:

- University of Utah
President J. Bernard Machen
- Salt Lake Community College
President H. Lynn Cundiff
- Dixie State College
President Robert C. Huddleston

- Utah State University
President Kermit L. Hall
- Weber State University
President Paul H. Thompson
- Snow College
Interim President Rick Wheeler

- Southern Utah University
President Steven D. Bennion
- Utah Valley State College
President Kerry D. Romesburg
- College of Eastern Utah
President Grace S. Jones

Regents:

Aileen H. Clyde *
L. Brent Hoggan
Michael S. Jensen
Maria Sweeten

David J. Grant
James S. Jardine *
David J. Jordan
Robert W. Peterson
Paul S. Rogers

Jerry C. Atkin *
Pamela J. Atkinson
Charles E. Johnson
E. George Mantes

Staff Resource/ Reporter:

Michael A. Petersen

Norm Tarbox

Gary Wixom

* Facilitator/discussion leader