

# School of Science and Health

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Providing Tomorrow's Education  
Today

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Overview of  
School and Departmental Needs

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## **School of Science and Health, Utah Valley State College Spring 2006**

The School of Science and Health at Utah Valley State College provides a growing and thriving environment of student learning. We are proud of our many accomplishments, achieved with a minimum level of funding and a maximum of efficiency. We have been successful in helping students obtain admission into Medical, Dental and other Professional Schools. We are well above the national average for placements in quality graduate programs. Furthermore, our students entering the workplace are often recruited due to continuous employer satisfaction.

Despite this admirable record, we have substantial, though not unreachable needs. We hope to bring our student's educational opportunities to par with the best science and health institutions in America. We believe we presently offer the best educational value in Utah and beyond and we want to improve our students opportunities

The following pages represent a snapshot of key examples of our successes and needs for the School. This short discussion discusses briefly each of our nine departments, all of which are outstanding teaching and learning centers.

Please consider the list of instruments, equipment, and capital needs found on the last page of this document. These represent our immediate needs to achieve specialized accreditation and to make our learning experiences even better for students. Obtaining these items will allow us to foster mentored undergraduate research between students and professors. We welcome your help with any of the items listed.

A handwritten signature in black ink, appearing to read "Sam Rushforth".

Sam Rushforth, Dean School of Science and Health

# School of Science and Health

**Philosophy and Values:** The School of Science and Health is dedicated to student and faculty success and opportunity. The administration of the School of Science and Health is one of shared governance including faculty to help provide leadership. Our major function is to promote our mission of student success and to be advocates for students, staff, faculty and programs. We strive to be the best program in the West. Preparing students for life-long learning, ethical living and fulfilling employment.



## Degrees Offered

- ◆ The School offers 14 four-year degrees and a number of two-year degrees
- ◆ Our newest degrees are in Community Health and Physical Education / Recreation
- ◆ As we approach university status, we will consider a MS in Nursing Education

## Students Served

- ◆ The School of Science and Health is student-friendly. We engage our students in an educational journey of personal empowerment
- ◆ Many students are involved in undergraduate research and internships
- ◆ Our students present their work throughout America

## A Few Student Successes

- ◆ Our students place well in graduate programs, professional schools and in the work place
- ◆ We often hear that a UVSC education with our personal faculty attention rivals any other college or university in the country
- ◆ Our students are widely accepted into medical, dental and other professional schools

## Examples Faculty Activities

- ◆ Our faculty continues to be involved in professional research and scholarly activities world wide
- ◆ Our faculty and staff are critical within the college to staff important committees
- ◆ Faculty members are involved in professional and community organizations
- ◆ Most of all our faculty is dedicated to students

## Prioritized Needs

- ◆ Health Science Complex
- ◆ Pope Science Building Renovation
- ◆ PE / Rec Building Renovation
- ◆ Biotechnology / Forensics Laboratory
- ◆ Botanical Center
- ◆ Scholarships
- ◆ Undergraduate Research Endowment
- ◆ Student / Faculty Presentation Fund
- ◆ Deans' Equipment / Instrumentation Endowment
- ◆ Professorships, Endowed Chairs, Retention fund for Exceptional Faculty

## Where Are We Going

- ◆ Continue to build our Advisory Council
- ◆ Initiating a \$25,000,000 capital campaign
- ◆ Planning a major remodel of the Pope Science Building
- ◆ We seek two additional facilities and adequate operational resources

## Student Success



# Biology

**Philosophy and Values:** The Department of Biology believes that students and faculty have a shared responsibility to obtain and share knowledge. Faculty should maintain their expertise by on-going investigation, presentation, and pursuit of scholarly activities. In addition to the pursuit of scholarly information in biology, students should develop skills in communication, analysis, and critical thinking relevant to biology and other disciplines.



## Degrees Offered

- ◆ BS in Biology
- ◆ BS in Biology Education
- ◆ BA or BS in Integrated Studies with Emphasis in Biology
- ◆ Minor in Biology

## Students Served

- ◆ Over 6,000 per years
- ◆ Over 500 majors
- ◆ Average of 58 graduates a year and growing

## A Few Student Successes

- ◆ Derrel Walket present abstract at National Conference for Undergraduate Research
- ◆ Justin Pattee co-authored a poster presentation for International Conference of Plant and Animal Genome
- ◆ Brent Nance accepted an internship at Purdue
- ◆ Robert Glazier presented abstract at ASM Meeting
- ◆ Kurt Krieger-James scored a perfect 200 on ETS Praxis II biology exam

## Examples of Faculty Activities

- ◆ Professor Kuddus submitted three articles for publication
- ◆ Professor Harris National Science Foundation grant for UVSC Virtual Herbarium—\$166,000
- ◆ Professor Harris five publications in last two years

## Prioritized Needs

- ◆ Microscope replacement
- ◆ 10 Laptops for teaching cell biology labs
- ◆ Bench-Top Autoclave
- ◆ Models for Physical Anthropology
- ◆ *Drosophila* Incubator

## Where Are We Going

- ◆ By Fall 2007 BS in Biotechnology
- ◆ By Fall 2007 BS in Ecology and Environmental Biology
- ◆ Emphasis in Forensics
- ◆ By Fall 2009 BS in Microbiology

**Student Success**



Utah Valley State College



# Chemistry

**Philosophy and Values:** The Chemistry Department at UVSC is responsible for providing undergraduate courses that support general education programs for associate and bachelor degree programs, support other disciplines requiring a strong chemistry component such as the life sciences, earth science, environmental technology and others, lead to a bachelor of science in Chemistry or a bachelor of science in Chemistry and Physics Education. We are preparing for American Chemical Society accreditation.



## Degrees Offered

- ◆ BS in Chemistry
- ◆ BS in Chemistry and Physics Education
- ◆ Minor in Chemistry

## Students Served

- ◆ 65 Chemistry and Chemistry Education Majors
- ◆ 87 Chemistry sections offered each year to support general education
- ◆ 3,200 students served each year

## Examples of Student Successes

- ◆ Two graduates, one attending dental school, the other in graduate work at the U of U
- ◆ Three graduates this spring, one is valedictorian for school and scored in the 94th percentile on the GRE
- ◆ Graduating up to 15 BS students per year

## A Few Faculty Activities

- ◆ Dr. Caka American Chemical Society Utah Chairperson
- ◆ Dr. Bond developed new Forensic Chemistry Emphasis
- ◆ Dr. Wilson developed on-line virtual herbarium at UVSC
- ◆ Dr. Horn has submitted a number of funding proposals
- ◆ Two faculty have received the UVSC distinguished faculty award

## Prioritized Needs

- ◆ A Nuclear Magnetic Resonance (NMR) Spectrometer critical for accreditation
- ◆ Instrumentation for Lower-Level Labs
- ◆ Instrumentation for Upper Division Labs
- ◆ Stockroom needs for safety (an explosion-proof refrigerator is critical)

## Where Are We Going

- ◆ Provide undergraduate research opportunities for all majors
- ◆ Provide internships in Chemistry
- ◆ Grow our number of graduates to 12-15 per year
- ◆ Continue service to students in small classes with exceptional faculty involvement
- ◆ Continue our national/international involvement

**Student Success**



Utah Valley State College



School of Science and Health

# Community Health

**Philosophy and Values:** The mission of the Department of Community Health is to contribute to the improvement of the well-being of individuals, families and communities. Academic study and course work is designed to guide students toward the intelligent self direction of their health behavior. The Department is committed to developing of academic programs that will assist students in the achievement their professional goals within the health care field. The faculty are dedicated to superior teaching, professional development (scholarship) and service.



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## Degrees Offered

- ◆ BS in Community Health with Emphases in Community Health Education and Health Service Administration
- ◆ BS in School Health Education
- ◆ BA or BS in Integrated Studies with Emphasis in Community Health
- ◆ Minor in Community Health Education
- ◆ Minor in School Health Education

## Students Served

- ◆ Over 200 declared majors
- ◆ 77 % increase in majors over last year
- ◆ Planning for 250 majors by 2007
- ◆ Large general education mission

## A Few Student Successes

- ◆ Jared Sumsion, UVSC Student Body President
- ◆ Several students accepted at Professional Schools
- ◆ Service-learning projects in Africa and elsewhere

## Examples of Faculty Activities

- ◆ International Health, Ghana HIV Education Program — Professor Rowan
- ◆ Utah Hospital Needs Assessment — Professor Keele
- ◆ Many professional publications —Professors Rowan, Hillman,

## Prioritized Needs

- ◆ Participate in community health improvement needs (nationally and internationally)
- ◆ Computer Lab
- ◆ Establish yearly Health Care Conference at UVSC
- ◆ Have students participate in community disease prevention projects

## Where Are We Going

- ◆ Enhance an already quality program
- ◆ HIV/ AIDS Awareness Center
- ◆ Impact Health Care Administration in Utah
- ◆ Continue Community involvement

**Student Success**



Utah Valley State College



School of Science and Health

# Dental Hygiene

**Philosophy and Values:** The Department of Dental Hygiene offers an Associate in Applied Science in Dental Hygiene. The Dental Hygiene program prepares graduates to take the Dental Hygiene National Boards, the Western Regional Dental Hygiene Clinical Boards, the Western Regional Written and Clinical Local Anesthesia Boards and apply for state licensure. Completion of the program prepares graduates to enter private practice as competent dental hygiene professionals.



### Degrees Offered

- ◆ AAS in Dental Hygiene

### Students Served

- ◆ 28 majored enrolled and graduated each year.
- ◆ Demand is upwards of 200 per year.
- ◆ Potential of increasing student numbers

### Examples of Student Successes

- ◆ Students involved in community activities:
  - Sealant Saturday
  - Food and Health Coalition of Provo
  - U of U Greenwood Clinic Health Fairs
  - Community Health Connect
- ◆ 100 % graduation rate
- ◆ 100% retention Rate
- ◆ 100% pass rate on qualifying board exams

### A Few Faculty Activities

- ◆ Dr. Veit awarded a Service Learning fellowship
- ◆ Dr. Veit Awarded a Perkins Grant of \$40,000 for DH equipment
- ◆ Dr. Veit lobbied in Washington on behalf of Community Health Connect
- ◆ Professor Kinnatedar traveled to Ghana to help establish dental hygiene program
- ◆ Faculty involved in numerous community service activities

### Prioritized Needs

- ◆ Modernized State-of-the-art instructional space
- ◆ Computerized treatment areas
- ◆ Pre-clinical labs

### Where Are We Going

- ◆ Continue to provide students with latest and best educational opportunities
- ◆ Continue our success in student placement and scholarly success
- ◆ Expand the program as community needs warrant

## Student Success



Utah Valley State College



School of Science and Health

# Earth Science

**Philosophy and Values:** The Department of Earth Science provides a dynamic and creative learning environment to excite students' curiosity about the world around them. We help students to: (1) trust science and understand how science works; (2) appreciate the various ways in which the Earth influences our lives and our society, and the ways in which our society impacts the Earth; (3) recognize the many potential career paths within the earth sciences; and (4) develop the skills, knowledge, and professional traits necessary to pursue those paths.

The Department provides Utah with Earth Science professionals who are skilled and creative and who are well prepared to address the Earth Science challenges faced by our community.



## Degrees Offered

- ◆ BS in Earth Science
- ◆ BS in Earth Science Education
- ◆ BS in Earth Science with Emphasis in Environmental Management
- ◆ BS in Earth Science Education
- ◆ Minor in earth Science

## Students Served

- ◆ 19 graduates since program creation 2001
- ◆ Serving upwards of 2,000 students per year in general classes
- ◆ Continue to grow program to around 100 majors

## Examples of Student Success

- ◆ Four recent graduates teaching Earth Science in Utah Valley Schools.
- ◆ Two of our graduates are currently in post-graduate programs.
- ◆ Graduates are working on geologic hazards assessment projects, working to cleanup polluted groundwater, searching for valuable ore minerals.
- ◆ Every graduate that has applied for position in their area of study has been successful .

## A Few Faculty Activities

- ◆ Undergraduate research supervision in area of GPS to monitor the motion of active landslides
- ◆ Study of rocks near Wasatch Fault to learn of uplift history
- ◆ Faculty and students present at numerous national conferences
- ◆ Faculty developed and lead field tour of the Geology of the Wasatch Front at the annual meeting of Geological Society of America

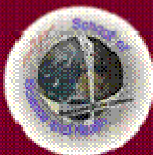
## Prioritized Needs

- ◆ Expanded Classroom Space
- ◆ Expand and upgrade to state-of-the-art Laboratory Space
- ◆ Dedicated undergraduate Research Space
- ◆ Provide state-of-the-art instrumentation

## Where Are We Going

- ◆ Need expertise in hydrology
- ◆ Incorporate Geographic Information Systems (GIS) into curriculum
- ◆ Improved management of equipment and supplies
- ◆ Continue community—centered undergraduate research

## Student Success



Utah Valley State College



School of Science and Health

# Mathematics

**Philosophy and Values:** The Department of Mathematics is committed to providing students with a solid mathematical foundation that will support subsequent coursework and career demands. The Department's faculty strive to maintain academic standards and college-level rigor in the mathematics courses they teach, and they are dedicated to helping their students master the mathematical concepts and skills that the students will need to achieve their academic potential and goals.



## Degrees Offered

- ◆ BS Mathematics
- ◆ BS Mathematics Education
- ◆ Minor in Mathematics
- ◆ AA/AS in Mathematics

## Students Served

- ◆ Serve upwards of 4,000 students a year at UVSC
- ◆ Increase Mathematics Majors
- ◆ Involve students in innovative ways to learn math for non-math majors

## Examples of Student Successes

- ◆ All graduates have been placed
- ◆ Successful in competitions
- ◆ David Dean, will receive MS degree in mathematics from University of Houston
- ◆ Noel Sitton will finish MS in mathematics at N. Arizona University

## A Few Faculty Activities

- ◆ Faculty are involved in active research
- ◆ Four have been recently published
- ◆ Two have been accepted to very prestigious research programs
- ◆ One faculty pursuing actuarial certification

## Prioritized Needs

- ◆ Student Scholarships
- ◆ Faculty assistants
- ◆ Faculty travel
- ◆ Funding for Adjunct Faculty
- ◆ Professional reference books
- ◆ Fund for undergraduate research

## Where Are We Going

- ◆ Our reputation in Utah is growing
- ◆ We are developing new pedagogies
- ◆ Several of our faculty will increase their international work
- ◆ Undergraduate research work
- ◆ Offer a statistics emphasis

**Student Success**



Utah Valley State College



School of Science and Health

# Nursing

**Philosophy and Values:** The Department of Nursing offers an Associate in Science and a Bachelor of Science in Nursing for Registered Nurses. The Associate degree program prepares graduates for the Registered Nurse role and qualifies them to take the national licensure examination. The Bachelor degree program provides students who are Registered Nurses with concepts and skills to advance their careers, enter mid-level management positions, practice in all healthcare settings, develop leadership and management concepts and skills, and pursue graduate education in nursing.



### Degrees Offered

- ◆ BS Degree in Nursing
- ◆ AS Degree in Nursing

### Students Served

- ◆ Over 1,500 pre-nursing students each year
- ◆ 60 students admitted to Associates Program twice a year
- ◆ 20 students admitted to BSN twice a year
- ◆ Currently 280 students in program

### Examples of Student Success

- ◆ 100 % of students passing national Board Exam obtain state positions in Nursing
- ◆ Students travel to Guatemala to help the Hurschi Smiles program
- ◆ 100 % placement

### A Few Faculty Activities

- ◆ Hsiu-Chin Chen two papers accepted for presentation at national conference
- ◆ Susan Rasmussen to present at 17th Annual International Nurse Educators Conference
- ◆ Lori Barber to present at Drexel University
- ◆ Summer externships

### Prioritized Needs

- ◆ Adequate instructional space for current enrollment and future growth
- ◆ Sim-Man Human Simulator
- ◆ Lap-top instructional computers

### Where Are We Going

- ◆ Develop simulation in teaching
- ◆ Potential Nursing Masters Degree with University Status
- ◆ Forensics Nursing emphasis
- ◆ Expand enrollment and service based on community need

## Student Success



Utah Valley State College



School of Science and Health

# Physics

**Philosophy and Values** Physics is the study of the laws of nature in their most fundamental form and is the basis for all other physical and engineering sciences. Physicists are valued for their versatility and problem solving skills. Progress in physics is at the heart of improvements in technology, solutions to environmental problems, and understanding the universe around us.



## Degrees Offered

- ◆ BS in Physics
- ◆ BS in Chemistry and Physics Education
- ◆ Minor in Physics
- ◆ AS in Physical Science

## Examples of Student Successes

- ◆ Kevin Erdmann and Kevin Jeffry presented paper on scanning tunneling microscopy image processing
- ◆ Eric Brown prior to starting graduate school captured the attention of Draper video programming company
- ◆ Heather Jones is developing planetarium shows for the hearing impaired
- ◆ Adam Denning and Kevin Jeffery are building a carbon dioxide laser
- ◆ Brett Ragozzine is helping his professor study the formation of a new star

## Prioritized Needs

- ◆ Digital Planetarium Projector.
- ◆ Scholarship resources for juniors and seniors
- ◆ Funded undergraduate research

## Students Served

- ◆ 60 Physics majors
- ◆ Over 3,500 students taught each year

## A Few Faculty Activities

- ◆ Discovery of very young star, Dr. Haisch
- ◆ Discovery of a dust disk, planet forming, Dr. Haisch
- ◆ Best Paper award from Utah Academy of Sciences and Arts, Dr. Benson
- ◆ Patent to Dr. Barger for Miniature Immuno-Optic rapid Analyte Sensor Platform
- ◆ Presentation at Purdue University on translation of ancient Greek manuscript by Hipparchus, Professor Mills

## Where Are We Going

- ◆ Grow the department to 80-100 majors
- ◆ Graduate 15-20 bachelor degree students each year
- ◆ Provide a meaningful undergraduate research project for each graduate

## Student Success



School of Science and Health

Utah Valley State College

# Physical Education and Recreation

**Philosophy and Values** The role of the Physical Education and Recreation Department is vital to the overall balance needed in a student's educational process. Our Department has as its major focus the development, comprehension, and promotion of a healthy and fit lifestyle. The aim, through teaching and service activities, is to improve and enrich quality of life by helping people value and achieve self-fulfillment and wellness.



## Degrees Offered

- ◆ BA and/or BS in Physical Education/Recreation
- ◆ BS in Physical Education teacher Education
- ◆ AA / AS in Physical Education and Outdoor Recreation
- ◆ Minor in Physical Education

## Students Served

- ◆ Over 7,000 students served each year
- ◆ 215 majors in PE/REC
- ◆ New degrees will create even more growth in future years

## A Few Student Successes

- ◆ Chad Tolman— Athletic Advisor San Jose State University
- ◆ Noelle Pikes-Pace—Olympic Athlete
- ◆ Dan Garcia— Second Nature Wilderness Therapy Program
- ◆ Chad Frost— Developed a try-before-you-buy program for Sportsman Warehouse

## A Few Faculty Activities

- ◆ Professor Galloway presented at University of Otago, New Zealand
- ◆ Professor Makasci presented at 2006 NAKPEHE
- ◆ Professor Slack— Research Fellow for UVSC
- ◆ Professor Vener— several recent important professional papers

## Prioritized Needs

- ◆ Expansion of Physical Education Building
- ◆ Update of all PE and Recreation Teaching and training equipment
- ◆ Update PE and PETE Motion Learning Laboratory

## Where Are We Going

- ◆ Continue to educate outstanding students and citizens
- ◆ Promote our profession regionally and nationally
- ◆ Support undergraduate research

**Student Success**



Utah Valley State College



School of Science and Health

## School of Science and Health List of Major Instrumentation and Equipment

1. Planetarium Digital Projector (Physics)	\$155,000
2. Student Microscopes – 100 (Biology)	\$300,000
3. Nuclear Magnetic Resonance (NMR) Spectrometer (Physics)	\$125,000
4. 2 Bench-top Autoclaves (Chemistry)	\$13,000
5. Teaching Laptops (10) (Nursing)	\$15,000
6. Drosophilae Incubator (Biology)	\$4,500
7. Physical Anthropology Models (Community Health)	\$7,000
8. Dental Hygiene Clinical lab Equipment (Dental Hygiene)	\$50,000
9. PETE Motor Learning Laboratory Equipment (Physical Education and Recreation)	\$30,000
10. Suburban for Earth Science student summer field studies (Earth Science)	\$50,000
11. Community Health Computer Lab Equipment (Community Health)	\$50,000
12. Visible Spectrometers (4 needed) (Chemistry)	\$10,000
13. Electro-analytical Instrumentation (Chemistry)	\$25,000
14. Ramam Spectrometer (Physics / Chemistry)	\$20,000
15. High-Performance Liquid Chromatography Equipment (Chemistry)	\$20,000
16. Deionized (DI) Water System (Biology)	\$8,000
17. Student Laboratory Centrifuges (15) (Chemistry)	\$30,000
18. Scanning Electron Microscope (Physics)	\$400,000
19. Explosion-proof Refrigerator (Chemistry)	\$5,000
20. Diode Laser Equipment (Chemistry)	\$5,000

### Capital and Long-Term Investments:

Health Science Complex	Deans' Equipment / Instrumentation Endowment
Pope Science Building renovation	Professorships, Endowed Chairs,
PE / Rec Building renovation	Retention of Exceptional Faculty
Biotechnology / Forensics Laboratory	Undergraduate Research Endowment
Botanical Center	Scholarships
	\$ 30,000,000

## School of Science and Health

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## School of Science and Health Utah Valley State

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