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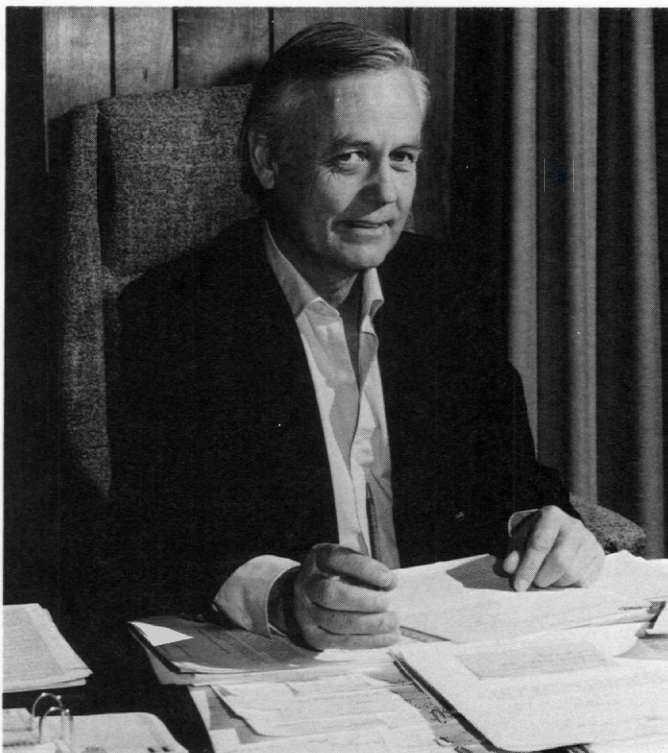
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Photos by Bonnie Hall,
CMC Photo Service, and others

Cover

Glimpses of the Third Annual Northwest Science Exposition, held at OSU, 11-12 April 1986. Featured are: Elizabeth Wang, Oregon Episcopal School, Portland; and International Science and Engineering Fair Finalists (left to right) Robert Ybanez, Nyssa High; James Roberts, Phoenix High; and Douglas Kwon, Joseph Lane Jr. High, Roseburg. (See page 15.)

Collage by Bonnie Hall



On behalf of the College of Science, I would like to extend an invitation to all interested students to visit us and to learn about the challenging opportunities in science. Our departments span the range of modern science (literally from A to Z) and have facilities for study and research in the biological, physical, mathematical, and earth sciences. We are proud of our faculty and supporting staff, many of whom are world-renowned both as scientists and teachers.

The importance of science is seen all around us, from the use of our knowledge of the structure of genes in the development of disease-resistant molecules, to the

use of computer-based techniques in weather forecasting. By its nature science is ever-expanding, and each discovery or answer raises more than one new question. Scientists in the future may also expect to become increasingly involved in such non-science fields as commerce, public policy and international relations, while students in these areas will in turn need an increased understanding of the methods and limitations of science. In response to these challenges, the College of Science plans to take new initiatives for research and study opportunities in the basic and applied sciences. An inquiring mind and a sense of the excitement of science are the prerequisites: Why not join us?

W. Lawrence Gates
Acting Dean

Oregon
State
University

This special issue of the *Science Record* is dedicated to our students and is directed to those high school students who are now making decisions about college. Your career goals are important to us. This issue strives to familiarize you, the prospective student, with the OSU College of Science, its departments and special programs. You are receiving this issue because you agreed to participate in "The College Board's Student Search Service."

About the College of Science

My hero is Man the Discoverer. The world we now view from the literate West—the vistas of time, the land and the seas, the heavenly bodies and our own bodies, the plants and animals, history and human societies past and present—had to be opened for us by countless Columbuses. In the deep recesses of the past, they remain anonymous. As we come closer to the present they emerge into the light of history, a cast of characters as varied as human nature.

Daniel J. Burstin, *The Discoverers*,
1983

We like to think that our students are “the Discoverers” of the future. We also like to think that we play a major role in opening up new vistas not only for those who will become the Columbuses of tomorrow but for all the others as well. The study of science provides a measure of intellectual freedom and the ability to make rational decisions in a world besieged by complex problems.

The College of Science at OSU plays a vital part in the life of the University and in the education of every student at Oregon State University. One of the largest academic units on campus, the College is composed of 14 departments offering undergraduate and graduate degrees in the scientific disciplines listed on the schematic drawing on this page.

In addition, the College faculty cooperate in a number of interdepartmental programs that prepare students who wish to enter the medical profession or other health-related fields, such as dentistry, veterinary medicine, nursing, physical therapy, medical technology, and others.

We strive to achieve excellence in teaching and advising. Every year students participate in the selection of the College’s outstanding teachers who are recognized with the “Lloyd Carter Teaching Awards.”

Advising plays a very important part in the day-to-day life of a student. Students need specific information about academic requirements, but they also need to relate to someone willing to discuss general intellectual concerns as well as career options. The development of a personal adviser-student relationship gives students

a sense of belonging to the academic community.

We encourage excellence in our students. More than 50 scholarships—based on merit—are given each year to students enrolled in the College who have excelled in academics.

The College of Science has vigorous research programs in a wide variety of biological, mathematical, and physical sciences. New discoveries in molecular genetics, in cancer-related research, in materials science, and other areas are changing our lives. Such research programs exert a vital influence in the classroom and provide opportunities for interesting work while in college.

Young men and women who enjoy a challenge and would like to be “The Discoverers” of the future will find the OSU College of Science a stimulating starting point. □

DEPARTMENTS

Atmospheric
Sciences

Biochemistry
and Biophysics

Botany and
Plant Pathology

Chemistry

Computer Science

Entomology

General Science

Geography

Geology

Mathematics

Microbiology

Physics

Statistics

Zoology

PROGRAMS

Biology

Mathematical
Sciences

Predental Hygiene

Predentistry

Premedical
Technology

Premedicine

Prenursing

Preoptometry

Prephysical
Therapy

Prepodiatry

Preveterinary
Medicine

Science and
Mathematics
Education

Student Profiles



Dwaine Charbonneau

Dwaine Charbonneau, of Hillsboro, Oregon, graduates in June 1986 not with just one degree but three. In his five years at OSU he completed requirements for bachelor's degrees in Physics, in Engineering Physics, and in English. Unusual? Definitely, but then Dwaine is an unusually talented young man with many interests.

At Hillsboro High School, he always liked physics classes and physics projects, which were essentially mechanical engineering projects. But Dwaine also enjoyed poetry and his classes in English literature. There was skiing, motorcycle riding, tennis, and basketball—hardly a bookish life.

He selected OSU because he wanted to major in Engineering Physics and because OSU was closest to home. "The first year I was here," he says, "I went home almost every weekend."

What was the hardest adjustment he had to make in coming to college? "I had no problems with academic subjects," he notes. "Before I started college I used to worry that I might not be able to do the work, but I soon found out that I could. The most difficult thing was going from the small high school classes, where we worked on projects in small groups, to the larger university classes. You lost your identity."

Dwaine made a 4.0 GPA during his first term at OSU, and he never failed to make the honor roll after that. But the road to final graduation from OSU was not exactly a straight path. He switched to Liberal Arts after his first year in Engineering Physics to concentrate on English literature, poetry, and short story writing. After that he decided to take a break from college because he was not sure just which course of study to pursue. He took three years off and went to work at a ski resort in Utah. The time away from school was a rewarding and enjoyable venture.

He returned to OSU in 1983 having made up his mind to continue his studies in physics and engineering where he knew he could make a significant contribution. At the same time he could not give up Milton, Shakespeare, and Joyce. He continued his program in English and participated in the University Honors Program. Under the tutelage of English professor Roger Weaver, he completed a special Honors project on creative writing—a collection of six short stories. One of these stories, "Middle Man," won honorable mention and a prize

in the 1986 Young Writers Fiction Contest sponsored by Northwest Magazine. The story was published in the 5 January 1986 issue.

As a final recognition of his contribution to the Honors Program and the University, Dwaine Charbonneau won the Helen Horning Schreiber Memorial Award, given each year to the outstanding Honors student.

Where does he go from here? He is getting married after graduation, and both he and his bride plan to join the Peace Corps for two years—"I know I can contribute something to one of the underdeveloped countries, and I want to make my own people-to-people contact," says Dwaine. Later, he plans to continue his physics studies in graduate school.

Heidi Fields came to OSU in 1983 from North Salem High School. She was awarded a "Presidential Scholarship"—one of several scholarships awarded by OSU to outstanding entering freshmen from Oregon high schools. Heidi has lived up to the University's expectations. She is now completing her junior year in Computer Science, maintaining close to a 4.0 GPA.

Heidi was born in Albany, moved briefly to Seattle with her parents, and then returned to Oregon, settling in Salem where she spent most of her life.

Mathematics was Heidi's favorite subject in high school. "I had an excellent math teacher in my junior and senior year," says Heidi. "Ms. Margo Bellock stressed the importance of computers, even though our school did not offer computer classes." It was Ms. Bellock who inspired Heidi and advised her to take Advanced Placement calculus in high school. Heidi also took a writing class through Chemeketa Community College, and those two classes gave her a head start with college credits.

Mathematics was complemented by music. She studied the violin for many years playing with the school orchestra, and for one year with the Salem Youth Symphony.

"I came to OSU," says Heidi, "because of the Presidential Scholarship and because OSU is well known for its science. I had an easy transition from high school to college. I think it was because of the excellent



Heidi Fields

teachers I had at North Salem High and the quality of the school's college prep curriculum."

The social adjustment was a little difficult because for the first year she lived at home in Salem and commuted to classes. Living in a dorm the following years proved helpful in meeting people and getting to know other students.

This coming summer promises to be different for Heidi. Up to now she has worked both part time and full time for Roth's IGA. Next summer she will go east for an internship with AT&T Bell Laboratories in Murray Hill, New Jersey.

Lisa Frost, an OSU graduating senior who came from West Albany High School, is enthusiastic about her field of study. Always interested in environmental problems and policies, Lisa has focused on the study of the natural environment and resources. She receives a bachelor's degree in Geography and a certificate in Russian Studies in June 1986.

"In high school I took a course on endangered species," says Lisa, "and I became very interested in problems of the environment. It seemed that by enrolling in geography I could learn about our natural resources and how best to preserve them."

She thought about going to school out of state, but a visit to the OSU Department of Geography and a talk with department chairman Dr. Thomas J. Maresh convinced her that she would get as broad an education at OSU as she could get anywhere else.

Lisa had few problems in adjusting to university life, except perhaps for the noisy dorms. She credits in part the good high school curriculum at West Albany and in part her Latin teacher, Bill McCraith, from whom she took four years of Latin.

"Mr. McCraith stressed good study habits," she says, "and also self-discipline. I particularly enjoyed my activities with the Latin Club at West Albany. As president in my junior and senior year, I helped organize several activities. We even had a Latin Conference one year."

Lisa is enthusiastic about her academic studies at OSU. "It was wonderful to have more control over my own studies...to be able to choose from many different areas. Dr. Maresh, the department chairman, was

like a personal friend—always ready to talk and advise me in the big decisions."

During her four years at OSU, Lisa has explored some new territory. She studied Russian for two years and completed a total of 30 hours in Russian Studies—an interest stimulated in part by her Russian ancestry and in part by her innate desire to improve communications in an area where it is most needed. With her typical approach to life, she has taken a very active part in school life. She was a member of several university student-faculty committees, and her academic ability won her a number of scholarships from the College of Science and from other sources.

At this point, Lisa has several options for work—the Environmental Internship Program for the Northwest Region; the National Wildlife Federation in Washington, DC; and a chemical company in the Bay Area, where she would be involved in environmental impact studies on hazardous waste. She plans to work for a year before going on to graduate school.

Scott Goodman, a senior who came to OSU from Klamath Union High graduates in June 1986 with a B.S. in chemistry. Born in Texas and raised in California, Scott came to Oregon when he was already in high school. A younger brother, Mark, is also enrolled in the College of Science as a sophomore in premedicine.

"My favorite subject in high school was band," says Scott. "But I also liked calculus, and a good teacher turned me on to chemistry."



Scott Goodman

Scott was uncertain about a major at first. He had seriously thought about music—he plays the French horn and the piano—but decided that it might be an impractical choice as a career. His choice of chemistry has proved sound, and he has done well. He had the opportunity to work on several research projects, most recently as a senior with chemistry professor John T. Yoke.

Scott chose OSU primarily because "OSU is well known as the place to come for science." His chemistry teacher in high

(Continued page 6)



Lisa Frost

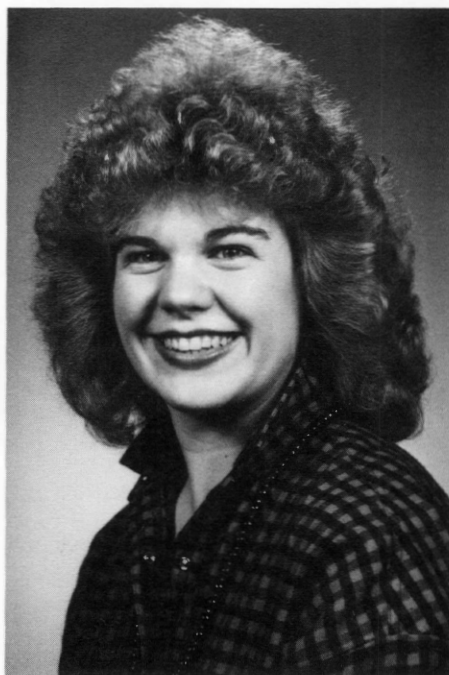
(Student Profiles continued)

school was also influential in his decision to attend OSU. As an entering freshman, Scott received two scholarships from Klamath Union High. He has since received additional scholarships. Last year he was awarded the Colleen Spurgeon Scholarship, which was donated by a recent chemistry graduate.

"The hardest adjustment I had to make when I came to OSU was living away from home," says Scott. "I had no problems academically. I had taken all the calculus I could in high school and had Advanced Placement for English. But I had to settle down and work hard in my last two years, more than I ever thought possible."

Scott found time for a lot of other things. He played intramural soccer and basketball; continued with his music; and most important he got married two years ago.

New challenges are on the horizon for Scott as he enters graduate school at Arizona State University in the fall. His next goal is a doctorate in chemistry.



Kathy Graham

Kathy Graham is a first-year student who graduated from Burns Union High. She was admitted to OSU on a "Presidential Scholarship"—a special \$1,000 renewable scholarship given to outstanding Oregon high school seniors.

"Being born and raised in Burns had its advantages as well as disadvantages," says Kathy. "Although educational and cultural activities are limited in a small town, I learned to take advantage of those that were available."

In high school she was chosen repeatedly "Student of the Year" for several academic subjects, but she also participated in as many activities as she could—from community stage productions and chamber music to school drama club, chess club, girls' athletics, student council, Model United Nations, and others.

As the daughter of a dentist and the granddaughter of a doctor, Kathy is thinking about a career in medicine or dentistry (oral surgery). She has first-hand knowledge of both fields because she has worked in her father's dental office and in the Burns hospital. The family connection to medicine goes even further. Her older sister Barbara is in her last year of medical school at the Oregon Health Sciences University in Portland.

Kathy's decision to come to OSU was based strictly on personal feelings since she was awarded Presidential Scholarships at both OSU and the University of Oregon.

"The people at the OSU New Students Program always had a very personal approach with me whenever I called with questions," says Kathy. "I was not just a social security number, but a person with a first name. And that was very important for me coming from a small town where everyone knows who you are."

Kathy received other scholarships from organizations in her home town. She feels confident about her ability to cope with the pressures of a rigorous program. One thing will help. She was able to bring 28 Advanced Placement college credits—something that would be helpful to all incoming college students.

Timur Kiykioglu is a sophomore in precomputer science who graduated from Beaverton High School. He feels that the college prep curriculum at Beaverton High was excellent.

"Math and computer science were my favorite subjects in junior high and in high school," says Timur. "I was lucky to have

good mathematics teachers. Before coming to OSU, I had one year of Pascal, which covered a lot of material in the first two computer science sequences here; one year of basic, and one year of calculus. It almost worked against me. My first term at OSU was pretty smooth sailing because so much of it was a review, and in my second term I had to make a serious adjustment to settle down to work."

He has learned his lesson now and would like to tell other incoming freshmen to learn discipline early and set time aside for work.

Other interests for Timur are music (clarinet and saxophone) and swimming. He was on the water polo team at Beaverton High School and is now on the OSU team (which by the way won the Northwest Conference Championship for three years in a row). Timur is a skilled draftsman and has worked with architectural drawings in the past. He also teaches swimming and works as a lifeguard.



Paul VanDevelder/Gazette-Times

Bryce Cleary in the 1985 Crescent Valley-McNary football game.

Bryce Cleary, a freshman in premedicine from Crescent Valley High School in Corvallis, was admitted to OSU on a "Presidential Scholarship."

In high school he excelled both in academics and sports. He was a running back for the Crescent Valley football team for four years and played baseball as well.

Bryce began to think about a possible career in medicine as a junior in high school when he took a course in anatomy from now-retired teacher Chris Christjanson. He had sound advice also from physics teacher Harry Burridge, who discussed the premedicine program at OSU and even took a group of high school students to Portland to tour the Oregon Health Sciences University.

Bryce finds the new university environment stimulating. "There is no busy work here as in high school," he says. "I like to be responsible for my own academic progress. On the other hand, it is good to know that professors care and are ready to help. I found that out when I had a little problem with chemistry, which I had never taken in high school."

Bryce had three other scholarships in addition to the Presidential Scholarship, and he thinks that high school students should start applying for scholarships early in their senior year.



Elisa Burgess

Another freshman from Crescent Valley High School in Corvallis is **William Eric Dazey**, who is majoring in mathematics. He is particularly interested in math education and at this point sees himself as a high school teacher.

Eric liked math and history in high school but credits baseball coach Gene Hilliard, an OSU graduate, with exerting a lot of influence on himself and other students.

"He taught us how to play ball, but he related to us in a special way and taught us a lot about ourselves," says Eric, who played all three sports for Crescent Valley—football, basketball, and baseball. He is now on the OSU baseball team.

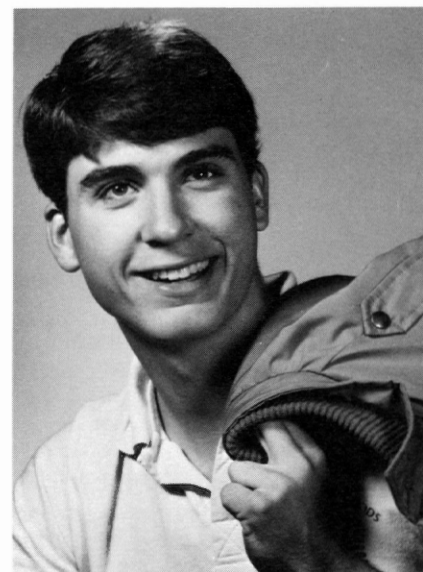
"I chose OSU because I have known a lot of OSU graduates who are very successful," notes Eric. "I knew that Science and Education are strong here, and I also liked the idea of being able to play baseball for OSU. Being close to home was also an important consideration. As for prospective students, I think that freshmen must be careful not to overload at the start. They should get a feel for what they are able to do first. In college we have a lot more free time than in high school, and it is hard to use it wisely."

Elisa Burgess is a sophomore in biology who graduated from Tigard High School. Elisa is thinking about a career in medicine, but she is keeping her options open.

"When I was a junior in high school, we went to an open house at Tuality Community Hospital," says Elisa, "and I met a woman doctor who was pregnant with her second child. That woman impressed upon me the fact that you could have a career in medicine and a family."

Elisa is a career-oriented student who also wants a broad learning experience. In high school she was an exchange student in Britain and Scotland, played basketball, and belonged to the Honor Society. At OSU she is a science senator, a member of the Science Council and of other university organizations. Next year she plans to attend the University of Massachusetts at Amherst on a National Student Exchange program.

She advises students who are making important college choices to visit the school. "Talk to professors," she says. "Get a feel for the campus. Studies are important, but the social component of your life is what keeps you sane." □



Eric Dazey

The Premedicine Program

Approximately one fourth of the students enrolled in the College of Science are in programs designed to prepare students for careers in health-related fields. The College offers rigorous training for undergraduates who want to enter professional schools in medicine, veterinary medicine, or dentistry. It also prepares those students who wish to pursue careers in nursing, optometry, medical technology, physical therapy, and other areas of the health professions.

The largest group of these students consists of prospective medical students. About 250-300 students are officially or unofficially enrolled in premedicine at OSU. They remain here a full four years to complete requirements for undergraduate degrees.

Premed students require expert guidance and advising because admission to medical schools is extremely competitive—a privilege granted roughly to half of those who apply. Once a student survives the freshman and sophomore years with flying colors (say a 3.50 GPA), he or she must channel all efforts toward one goal: admission to medical school. National statistics provided by the Association of American Medical Colleges show that about half of the students who apply actually gain admission to medical school. OSU premeds who applied to enter medical school in fall 1985 fared better than the national average. Out of 68 applicants, 45 matriculated, or 66 percent.

There is a strong correlation between grades obtained in college and scores achieved in the Medical College Admission Test (MCAT). The MCAT is a comprehensive test in six different academic areas, which is usually taken at the end of the junior year. It is one of the important criteria that medical schools use in granting admission.

In addition to providing rigorous training in the sciences, the College helps premed students in many ways. In their freshman or sophomore year, students begin by taking a premed orientation course (Bi 107M), which is taught by the chief premed adviser in the College of Science. The course provides a good interchange, where students find out what is required of them, what is happening in medical schools, and what is happening in the medical profession. The instructor answers numerous questions, explains curriculum choices, and dispels many rumors.

An important learning situation for premed students is the Preceptorship Program, which is operated by the College of Science in cooperation with Good Samaritan Hospital in Corvallis. Juniors and seniors in the premed program get first-hand knowledge of a physician's life by working closely with a doctor several hours a week for one academic term. For many students this is one of the most enlightening experiences of their undergraduate training.

During winter term 1986, several students participated in the preceptorship program. For example, **Joseph A. Barrett**, a junior who came to OSU from Creswell High School, worked closely with Dr. John Watson, an ear-nose-throat specialist; **Joseph K. Kenoyer**, a junior who attended Ketchikan High School in Alaska, did his preceptorship with Dr. Charles Terhune, an internal medicine specialist; and **Catherine J. Latham**, who transferred to OSU from Clackamas Community College, worked closely with Dr. Thomas Hard, an obstetrician.

The Premedical Society, an ASOSU organization, provides the greatest services to premed students, with the help of the College of Science. Society President **Patricia S. Conroy**, a senior from Portland, notes that the Society brings to campus physicians who offer practical advice and discuss topics of interest with prospective medical students. Other speakers are also invited to share pertinent information with premeds. For example, a panel of medical students from the OHSU School of Medicine comes to OSU each year to share individual experiences about medical school and to answer questions. Other activities during spring term 1986 included a tour of the OHSU School of Medicine in Portland and a demonstration on acupuncture given by the Oregon College of Oriental Medicine.

Finally, the College of Science helps deserving students with a number of scholarships awarded on the basis of merit.

* * *

Premed students in general have a desire to excel. They work hard, and they have a definite goal. Who are some of these students?



Pat Conroy smiles happily as she holds her Jesse Hansen Scholarship certificate. Photo was taken at the 1985 Scholarship Luncheon given by the College of Science for its scholarship recipients.

Pat Conroy, 1986 president of the OSU Premedical Society, is an Oregonian who grew up in Portland and graduated from St. Mary's Academy. She attended Mt. Hood Community College and Pacific University before coming to OSU. She had always thought about entering the health care profession in high school, but at that point in life her immediate goal was to become a physical therapist. Sometimes it takes a little longer to discover one's capabilities.

"I have learned over the years that I was capable of doing more and better than I thought I could," says Pat. "When I returned to school after a few years, I had a firm goal, and I knew what I had to do to reach it."

Pat is now married and has an eight-year-old son. Her husband Lewis Sternberg, who is very supportive of her career goals, also graduates this spring with a degree in engineering.

Pat transferred to the OSU College of Science as a premed student in 1983. Her preparation in high school gave her a strong background in the sciences. She has maintained a high grade point average, received a scholarship from the College of Science, and been involved in the activities of the premed group. As secretary of the OSU Premed Society in 1984-85, she

organized meetings and wrote "Vital Signs," the society's newsletter; she became president of the society in 1985-86.

"My greatest challenge while in school," says Pat, "was to make sure that I spent enough time with my son and my family. Perhaps my grades will not be as high as they could have been when I graduate, but it is a small sacrifice."

Pat doesn't need to worry, however. Her GPA is high enough; she did very well in the MCAT; and she has been accepted at the OHSU School of Medicine in Portland, where she begins her studies this coming fall.

Four years of College are coming to a close for **Knute Buehler**, a senior from Roseburg, Oregon. He graduates in June 1986 with a bachelor's degree in microbiology and a minor in history. This is not all, however. Knute is also a premed student and next fall will enter Johns Hopkins University School of Medicine—one of five medical schools that granted him admission.

Knute says he probably decided to become a doctor when he was a junior at Roseburg High School. He had a good role model—his brother Mark was then attending OSU as a premed student—and Knute would often come up to visit him. (Mark has since completed medical school at the Oregon Health Sciences University in Portland and is now finishing his residency.)

The rigorous premed program at OSU did not keep Knute from being active in sports. He managed to play varsity baseball for three years. "It was a little difficult every spring term," he says, "but I tried to take only 12 or 13 hours. I even had to cut down my social life—maybe just go out one night a week instead of two."

About his classes and teachers, Knute notes that "the strength of OSU is its faculty." "The professors are excellent teachers," he says, "but they are also human and friendly people. It's hard for freshmen to see this because they are often intimidated, but once they get over that initial feeling, they can really get a lot of help from their teachers."

He feels that at OSU he had the opportunity to engage in many different activities. He received a good education—"I am glad I minored in history," he says.

"You get a global perspective on things, and it is a refreshing change from the sciences." He was able to play a varsity sport; and he also had the chance to do cancer-related research in the laboratory of Dr. Adolph Ferro in the microbiology department.

What would Knute tell high school students who are making decisions about possible colleges and careers?

"Set a long-term goal for yourself and work towards it, but also have short-term goals that can be reached more easily. Even if you don't reach the ultimate goal, you will be in a good position to do something else. Above all, when you get to college, be exposed to as many different areas as possible. Even though you think you know what you want, have an open mind and explore other subjects."

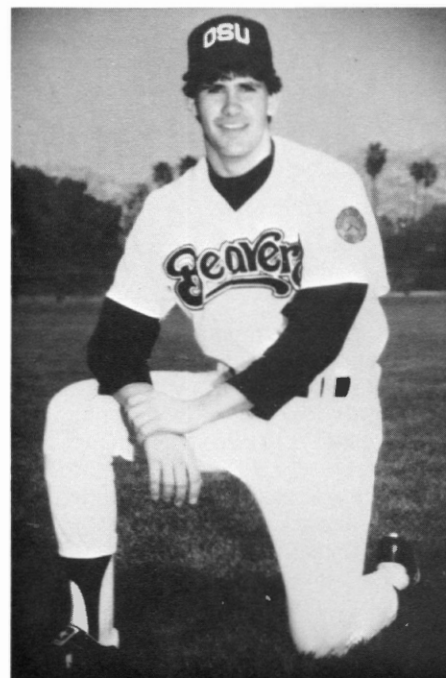
Scott Orava is a sophomore in premedicine from Stevens High School in Rapid City, South Dakota. As is often the case, he came to OSU because a friend was already attending school here. "I came to visit the campus during Moms' Weekend in my senior year, and I liked what I saw," he says. "I also knew that OSU has an excellent premed program."

Scott is currently president of the OSU Science Council—a select organization for Science Senators and students enrolled in the College of Science. This Council handles a variety of student-related problems that come up during the academic year.

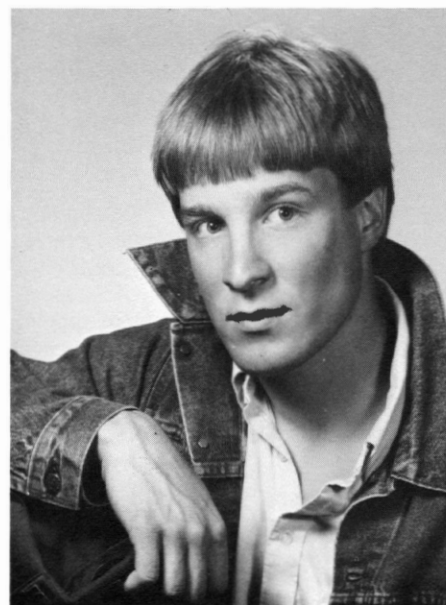
Scott always liked science in high school, and even in junior high he began to think about a medical career. "From then on," he says, "I geared my coursework in high school to include a lot of math and science classes." He found also time to be active in sports, lettering in golf, tennis, and basketball. At OSU he continues to be active in sports, particularly in intramural softball.

Adjusting to university life and a larger environment presented no great problems for Scott. In retrospect, he wishes that he had asked more questions when he was a freshman.

"It probably would have saved me a lot of trouble," he says. "I would like to tell every freshman never to be afraid to ask questions. Everyone is always willing to



Knute Buehler



Scott Orava

help, and in any department there is someone you can talk to when you have a problem."

"Asking questions" helped him find a summer job in the Department of Biochemistry and Biophysics. On May 1 he began working in the laboratory of Drs. Donald Reed and Ann Brodie. He will continue on that job full time during the summer. Working in a biochemistry laboratory provides excellent practical experience and allows him to develop a project for the Honors Program.

In completing successfully his sophomore year, Scott is half way toward his goal—admission to medical school. □

About Internships

For many students, internships provide important learning experiences in one's chosen field of study. Many departments and most of the preprofessional programs in the College of Science offer internships, which carry some college credits as well as salaries. Students spend a few months out in the work place, usually during the summer, finding out exactly what it is like to work as a computer programmer, or a medical technologist, or a veterinarian, or in some other profession.

Several seniors in Computer Science have already participated or will participate in internships this year: **Karen Cooper** (Sunset High, Beaverton) and **Michael Hatam** (Estacada High) interned with IBM Santa Teresa Labs in California for three and six months respectively; **Eugene Hyde** (La Grande High) will intern with Weyerhaeuser Information Systems for six months; and **James Perkins** (Aloha High, Beaverton) will work at Tektronix in Beaverton for six months.

Students in the Department of Geography can participate in the department's internship program and earn up to 15 credit hours. **Richard Yarrington** (Wahtonka High, The Dalles) is working for the Linn County Planning Department during spring term 1986, and **Linda Eissmann** (a transfer from State Univ. College at Oswego, NY) worked for the Division of State Lands in Nevada last summer.

The Occupational Internship Program in the Department of Mathematics allows students to earn six hours of credit by working with a number of companies and agencies, such as Standard Insurance Company, Tri-Met in Portland, Boeing Aircraft Company, Bangor Submarine Base, and Weyerhaeuser. During summer 1985, **Therese R. Zuver** (Walla Walla High School, Washington) participated in this program and worked for Standard Insurance Company.

Two intern courses are offered for credit in the Department of Microbiology. Student interns can either work for two months during the summer at the Oregon State Public Health Laboratory in Portland or spend several hours per week for one term at the Oregon State Department of Agriculture in Salem studying food surveillance methods.



Carla Ormond

Microbiology senior **Carla Dianne Ormond** (Silverton High School) spent two months last summer at the Oregon Public Health Laboratory in Portland and received ten college credit hours. "It was a good experience because I was exposed to a lot of techniques and procedures that ordinarily are not seen in an undergraduate lab," she says. "I spent a week in each different department working with a variety of procedures—processing specimens, testing neonatal blood, and even testing samples from the recent Salmonella outbreak in The Dalles."

The Department of Zoology offers internships for its own students and those in the preveterinary medicine program. By signing up for Zoology 410, a student can earn a maximum of 12 credit hours and find out what it is like to care for animals in a zoo or to work as a veterinarian. Some zoology students have worked as interns in the Portland Zoo and at Wildlife Safari in Winston, Oregon. Last summer **Mathew Allan Davis**, (Roseburg High) and **Carol Day** (North Bend High), both preveterinary medicine majors with emphasis in zoology, learned about life around the big animals at Wildlife Safari. □

About Our Graduates

We try to keep in touch with our graduates, many of whom are prominent professionals in a variety of fields. Approximately 50 percent of the Science graduates pursue advanced degrees before seeking employment in their chosen field. It might be helpful for prospective students to have an idea of what some of our recent graduates are doing just a few years after graduation.

Nancy L. Baker (Atmospheric Sciences, 1981) is a research meteorologist with the Numerical Modeling Department at the Naval Environmental Prediction Research Facility in Monterey, CA; and **Mary L. Batteen** (Atmospheric Sciences, 1984) is assistant professor of oceanography with the Naval Postgraduate School in Monterey, California. **John P. Snook** (Atmospheric Sciences, 1980) works as a fire-weather forecaster for the Weather Service in Redding, CA.

Jeff Jensen (Biochemistry/Biophysics, 1980) is employed by a pharmaceutical company in Southern California. He helps design and coordinate clinical studies which test the safety and efficiency of drugs. **John W. Hayes** (Biochemistry/Biophysics, 1981) is a professional representative with Merck, Sharp & Dohme Pharmaceutical Company.

William L. Anderson, Jr. (Computer Science, 1981) is a senior software engineer with Metheus-Computervision in Hillsboro, OR; **Cherry Suhrbier** (Computer Science, 1984) and **Don Taylor** (Computer Science, 1983) are software engineers with Tektronix in Beaverton, OR. **Norman Oakes** (Computer Science, 1984) is a computer tech/analyst with Boeing Computer Services in Seattle. He has been working on a parts testing database in support of the Commercial Airplane Structures group.

Ann E. Hercher (General Science-Premedicine, 1983) is a third-year medical student at the OHSU School of Medicine and will probably choose a residency in internal medicine; **Mike Phillips** (General Science, 1982) graduates from the OHSU School of Medicine in June 1986 to begin a residency in internal medicine.

Eric H. Brandt (Geography, 1983) is project manager for the Environmental Systems Research Institute in Redlands, CA; **Ken Yeats** (Geology, 1981) is a geologist for Chevron U.S.A. in Denver; **M. Duane Nellis** (Geography, 1980) is assistant professor of geography at Kansas State University where he was named 1985 "Advisor of the Year."

Michael A. Thorburn (Mathematics 1983) is currently working in an R & D group that designs antennae for the satellite division of Rockwell International at Huntington Beach, CA.

Susan Pope Bauer (Biology and Sci. Education, 1982) is an assistant entomologist for the Sutter-Yuba Mosquito Abatement District in Yuba City, CA.

Katherine L. K. Faye (Microbiology, 1980) is doing academic research in the Department of Internal Medicine at Yale University School of Medicine. **Joanne Nordlund** (Microbiology, 1983) is a medical technologist at Children's Orthopedic Hospital in Seattle; and **Donna J. Poage** has an interesting position as "criminalist" with the Oregon State Police Crime Laboratory in Portland. She spent one year at the Oregon Health Sciences University in the medical technology program and was later sworn in as a police officer.

Curtis A. Meyer (Physics, 1982) is completing work for a Ph.D. degree in medium energy particle physics at the University of California at Berkeley. □

NEWS AND NOTES

From the departments...

The Department of Atmospheric Sciences is acquiring a VAX 11/750 computer with 1.2 gigabytes (billion bytes) of hard disk storage, a high-speed tape drive, a high-resolution graphics device, and six terminals for general use. This facility will be used in departmental research projects requiring extensive computing and to provide students with "hands-on" exposure to computational techniques in the atmospheric sciences. The departmental computer will be linked to the PDP 11/70 computer at the OSU Climatic Research Institute (CRI) and the OSU Local Area Network. Within a year, it will be linked via satellite with the National Center for Atmospheric Research, which has several supercomputers.

Junior and senior students in the Department of Biochemistry and Biophysics are encouraged to join research teams, where they work alongside faculty members, advanced graduate students, and postdoctoral researchers. Often this experience leads to coauthorship of scientific publications. In all cases it helps a student decide whether to pursue a career in scientific research or whether to use the biochemistry/biophysics training in another profession, such as medicine or business.

During 1985-86 about a dozen undergraduate students are carrying out research with biochemistry/biophysics faculty members. Rachel Dunn (Stayton Union High), Rich Schwabauer (Milwaukie High), and Scott Dunn (Grant Union High, John Day) are working with Dr. Wilbert Gamble on research to determine the origin and mechanism of deposition of free cholesterol in atherosclerosis. Rachel and Scott will be attending medical school next fall, while Rich is completing a second degree program in Business.

David Latwesen (Gervais High) and Thaddeus Reeder (Medford High) are working with Dr. Donald Reed on the toxicity of substances used in the plastics industry and on the biochemistry of anticancer drugs. Dave will start graduate school this fall at the University of Wisconsin.

In Dr. Sonia Anderson's laboratory, Douglas Schleiger (Wm. Mitchell High, Colorado) and Karen Sommer (Tigard High) are studying model systems for an important facet of the regulation of energy

metabolism. Karen is starting medical school next fall, while Doug is completing separate degree programs in Biochemistry/Biophysics and Engineering. Also targeted for medical school, in a combined M.D.-Ph.D. program, is Stefan Spann (Englewood High, Colorado), who is working with Dr. Christopher Mathews. Stefan and Meredith Howell (Buchholz High, Florida) are both doing research in recombinant DNA.

The Department of Botany and Plant Pathology offers a variety of research activities for undergraduates, from learning techniques in cell and molecular biology to caring for greenhouse plants.

The laboratory of Dr. Dallice Mills provides five undergraduates with experience in experiments designed to understand the genetics of pathogens that cause diseases in plants. During the past year Tim Davidson, (Sunset High, Beaverton) and Fritz Gombart (Roseburg High) have worked with a bacterium that causes leaf streak in cereal. Stephanie Child (Ontario High) is assisting in studies of the genetics of a wheat pathogen. Ron Richards (Interlake High, Bellevue, Washington) makes general laboratory solutions and growth media for bacteria. John Skillman, a transfer student from Illinois, is currently cloning fragments from a bacterium that infects beans.

Tim Grudt, a senior in biology who attended North Eugene High, is working on a senior research problem in the laboratory of Dr. Carol Rivin. He examines the regulation of protein synthesis during germination in maize.

Undergraduates, graduate students, and faculty interact strongly in classrooms and laboratories in the Department of Chemistry. Many chemistry majors participate in a variety of research projects. Marty Campbell (Churchill High, Eugene) is working in Dr. John Yoke's laboratory on a phosphorus-nitrogen compound that is used to form a cobalt complex. Lynda Sanders (Sheldon High, Eugene) assists Dr. Philip Watson on a project designed to align the crystal planes of titanium.

Lisa Pagh (Franklin High, Portland) synthesizes oligonucleotides for a RNA analog in Dr. Dwight Weller's laboratory. Eric Eifrig (Crescent Valley High, Corvallis)



Tim Grudt prepares a two-dimensional gel used to separate and characterize proteins.

is designing an elemental analysis scheme using glass and x-ray fluorescence in the laboratory of Dr. John Westall. Gary Bonus (Lebanon Union High) synthesizes metallic-boro-oxides for use as tunable lasers in Dr. Douglas Keszler's laboratory; Brian Keele (Springfield High) studies the interactions of high-energy carbon atoms with gold under the guidance of Dr. Walter Loveland; and in Dr. Westall's laboratory, Chris Shotts (Gilchrist High) is developing a computer program that will produce non-linear least squares plots of experimental data.

The Department of Computer Science continues to upgrade its computing resources to ensure that ample computing facilities are available for instruction and research. Special laboratories with Apple Macintosh computers have been set up for programming instruction; Tektronix Pegasus work stations for classes on artificial intelligence and IBM PC-ATs for graphics are also available.

These changes have dramatically increased the accessibility of both computer science classes and computing resources. Virtually all students are now admitted to the computer science courses of their

choice, and every student has extended access to the departmental computers.

Members of the Computer Science faculty participate in cooperative research ventures with leading microelectronics firms in the Pacific Northwest. These efforts, spearheaded by a new Industrial Affiliates Program, involve the faculty in the latest technological developments and strengthen the bonds between the Department of Computer Science and the local computer industry. Students participating in these special programs experience "the real world" of Hewlett-Packard, Tektronix, IBM, and other corporations. New courses explore parallel computing, expert systems design, decision support systems, and experimental programming languages.

The Department of Entomology offers summer opportunities for students interested in gaining practical experience in insect pest management and in other employment involving insect study and control. A student, for example, can work as an integrated pest management scout in alfalfa, mint, and filbert crops or conduct field surveys of mosquito and other insects. The Department has excellent computer facilities, and students can gain experience with modern computer applications, including computer modeling and simulation. Mark Morris, a South Eugene High graduate and the winner of a departmental scholarship, gained valuable experience in several research areas while earning a B.S. degree in entomology.

The Department of General Science is considering offering a degree in Environmental Biology. This interdisciplinary program would give students the opportunity to combine different areas of interest while focusing on the study of environmental issues.

The Geographic Information Laboratory in the Department of Geography enables students to obtain state-of-the-art training in computer-assisted cartography and remote sensing. This training supplements the Department's traditional emphasis in applied economic, physical, and resource geography. Many students obtain positions with agencies that are involved in environmental studies, economic development, land and water planning, and transportation.

To help prepare students for the job market, the department offers a one-credit course, **Careers for Geographers**, that informs students about potential employment opportunities.

Geology graduates are involved in energy-related field studies, and in petroleum exploration and production. The present worldwide abundance of petroleum products has resulted in reduced geology enrollments across the nation—a phenomenon that will lead to a shortage of geologists in the 1990s.

The Department of Mathematics teaches more than 5,000 students each term. Incoming students are often uncertain about which mathematics course to take first. "Which course am I ready for?", "Do I need Precalculus before Calculus?", "Advanced Placement says I have credit for Mth 200 and 201, but can I take 201?" are common questions. The answers depend on a careful assessment of a student's previous course work and on how well he or she learned the material. Advisers can help students identify the proper course in which to enroll. In general, the Department of Mathematics strongly urges all high school students to take a mathematics class during their senior year.

The Mathematical Sciences Learning Center (MSLC) plays an important role in the undergraduate mathematics program. Approximately 1,000 students use the Center each day. MSLC has several functions. Mathematics tutors provide assistance to students on a one-to-one basis, and students can take independent study courses at the precalculus level and introductory self-study courses in computer science and statistics. Examinations are administered in the Center for the self-study courses. The most recent addition is a new microcomputer classroom/laboratory with 18 Apple IIe microcomputers and two printers. The Center is open until late in the evenings, and a tutoring service in mathematics is also offered on many weekends during the term.

The Department of Microbiology is particularly proud of its advising program and the assistance given to incoming freshmen and transfer students. It is important for these students to be guided early in their career by an adviser who is familiar with their needs and problems.

An orientation course, **Microbiology 107**, gives new students the opportunity to learn about the diverse programs available within the department. Students can join the OSU Microbiology Club, where they learn about employment opportunities, meet other microbiology students and faculty, and develop leadership skills.

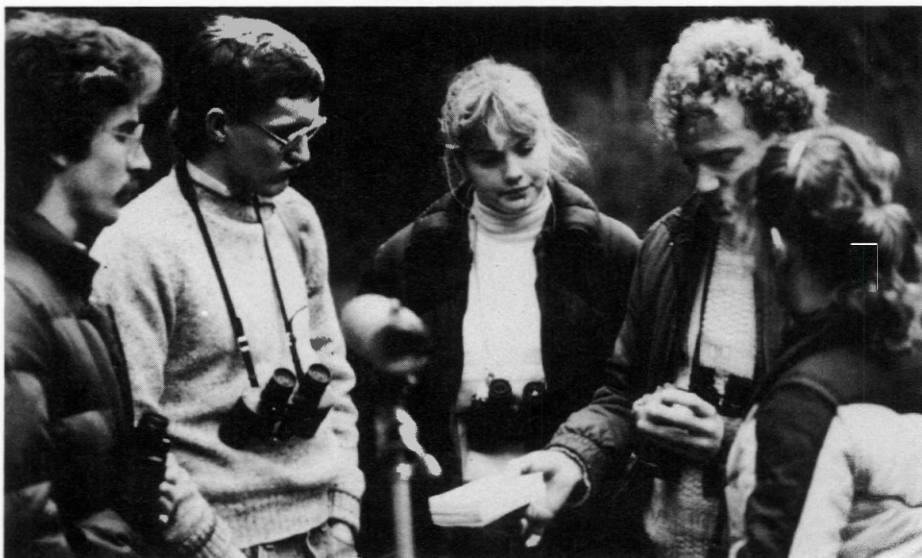
The Association for Oregon Medical Technology and the Oregon State Society of American Medical Technologists held their annual joint spring seminar at OSU in early May 1986. Over 300 participants attended the 33 seminars given by leading clinicians and researchers. Student members of the OSU Society of Medical Technologists are among the most active premedical technology students. A student delegate to the national medical technology convention is selected at these annual meetings. Last year Janet Rush Kuenzi, president of the OSU student chapter of the Society, won this honor. Janet is a graduate of Gervais High and is currently attending Medical Technology School at St. Vincent Hospital in Portland.

The Department of Physics is offering a new course on the use of computers in scientific instrumentation: **Computer Interfacing and Instrumentation (Physics 461x)**.

"The combination of computer and electronic skills is highly valued in the job market," says physics professor Carl A. Kocher. "We are trying to acquaint students with principles that they can use later in their working life. As part of the term's work, each student in the class selects and undertakes a special interfacing project."

Several undergraduates in the department participate in research programs and assist with physics labs. Physics majors David Anderson (Oregon City High) and Geoffrey Fanning (Beaverton High) helped in the labs during spring term 1986.

(Continued, next page)



Members of the Zoology Club on a recent trip to San Juan Island. Left to right: Aaron Clemmons, Andy Wuehler, Monica McClellan, Brad Tylman, and Karen Dennison.

(News and Notes continued)

The Department of Zoology encourages undergraduates to participate in research projects. Merideth Humphries (Baker High) and Mary Hermon (Palmer High, Alaska) work on studies of animal behavior under the direction of Drs. Andrew Blaustein and Richard O'Hara. Antonio Pena (Madras Senior High) and K. Marian Kim (St. Mary of the Valley Academy, Beaverton) are doing research on chicken mutants in the laboratory of Drs. John Morris and Sandra Potter.

The Department has a very active Zoology Club for undergraduates. The Club sponsors monthly meetings where biologists from campus give talks about their research and activities. Dr. Fred Rickson (Botany and Plant Pathology) and Dr. Robert Storm (Zoology) recently spoke to the Club about their research and teaching abroad. Dr. Rickson discussed his experiences in the Amazon Basin and in India. Dr. Storm showed slides and lectured about his recent bird safari in Kenya, which was sponsored by the Audubon Society.

Members of the Zoology Club participated in three major field trips in 1986. At the beginning of the academic year, they visited the University of Washington's Friday Harbor Laboratories; during spring break, they made a trip to the Sonoran Desert in southern Arizona in connection with a class in desert biology; and at the end of spring term, the group made a trip to southeastern Oregon. The focal point for these trips was collecting vertebrates for research projects and classes. □

OSU Hosts Northwest Science Exposition



A group of first- and second-place winners. Standing, left to right: Michelle Selfridge and Andy Mathews, Nyssa High; Joalynn Smith and Andrea Varner, Joseph Lane Jr. High, Roseburg; Brian Litzenberger, Oregon Episcopal school, Portland; Robert Ybanez and Anke Shoelzel, Nyssa High; James Roberts, Phoenix High. Kneeling: David Jarman, Crescent Valley High, Corvallis; and David Dowker, Joseph Lane Jr. High, Roseburg.

The OSU College of Science hosted the Third Annual Northwest Science Exposition on 11-12 April 1986. Over 800 secondary school students and teachers from about 80 schools in Oregon converged on OSU with about 200 science exhibits—enough to fill to capacity the Memorial Union Ballroom. Approximately 80 judges from academia and industry spent the first day of the Expo evaluating the exhibits.

The program included a variety of activities for participating students—guided tours to campus and nearby laboratories as well as to local industries; visits to 40 different lower-division science classes at OSU; a special lecture and awards meeting on Friday evening; and on Saturday the "Science Olympics" at Crescent Valley High School in Corvallis.

Dr. W. Lawrence Gates, acting dean of the College of Science, welcomed the participants at the Friday evening awards session in the Stewart Center. Geology professor Julius Dasch returned from sabbatical leave at the NASA Space Flight Center in Houston to deliver a special lecture. He captured his

young audience with films from NASA's Voyager interplanetary space probe. Following the lecture, awards were presented to the winners of the science exhibits, some of whom are shown here and on the cover.

Expo participants welcomed the chance to view science activities at OSU. After attending classes, several students remarked that they were "going to study harder in high school" now that they knew what was expected of them at the university level. In turn, many OSU faculty members were impressed with the quality of the exhibits and said they hoped these students would enroll at OSU in the future.

The Expo is directed by a 20-member statewide board of science educators, several of whom are OSU alumni. Dr. William Lamb, science instructor at Oregon Episcopal School in Portland, was the overall director for the 1986 Expo. Dr. David Willis and Grace Cameron of the Dean's staff, College of Science, were the OSU coordinators. Over 30 College of Science undergraduates ably assisted as escorts to classes and tours. □

College of Science Directory

Please write us if you would like to know more about the College of Science. If you have questions or need additional information, feel free to call specific departments directly. Our area code is 503.

Dean's Office.....	754-4811
Atmospheric Sciences.....	-4557
Biochemistry & Biophysics.....	-4511
Botany and Plant Pathology.....	-3451
Chemistry.....	-2081
Computer Science.....	-3273
Entomology.....	-4733
General Science.....	-4151
Geography.....	-3141
Geology.....	-2484
Mathematics.....	-4686
Microbiology.....	-4441
Physics.....	-4631
Statistics.....	-3366
Zoology.....	-3705

Programs

Biology.....	754-2993
Mathematical Sciences.....	-4686
Pedental Hygiene.....	-4811
Predentistry.....	-4811
Premedical Technology.....	-4441
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Prenursing.....	-2131
Preoptometry.....	-4811
Prephysical Therapy.....	-4811
Prepodiatry.....	-4811
Preveterinary Medicine.....	-4811
Science and Mathematics Education.....	-4031

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