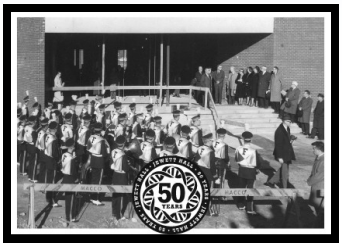
BIO BITS
Biology News from Jewett Hall



Fiftieth Anniversary Celebration of Jewett Hall – September 28-29, 2012

It's almost here! The Jewett Hall 50th Anniversary celebration will be held during Homecoming weekend on September 28-29. Activities begin Friday afternoon with a keynote seminar presented by Dr. Dennis Thiele, '78, Department of Pharmacology and Cancer Biology, Duke University followed by a reception for alumni, students and faculty. Saturday activities kick off with coffee and donuts in Jewett Hall and lots of photos, videos and written reflections supplied by alumni and emeritus faculty. After that comes the Alumni Brunch and the Science Alumni Conference; we hope many of our alums will consider offering presentations at the conference. After the conference, it's off to the College Lodge where Natural History Tours will be provided by Biology faculty Bill Brown and Jon Titus. Following the tours will be a reception, dinner and reflections and memories shared by alumni and emeritus and current faculty. We anticipate a time of great fun and sharing of memories.. Please visit our webpage http://www.fredonia.edu/department/biology/news/jewett50thcelebration.asp You will be able to find additional information about planned activities, register for dinner, add your name to our list of attendees (and see who else is coming!) and share your memories of Jewett Hall. You can also visit our Facebook page at http://www.facebook.com/sciencesatfredoniastate We hope to see you there!

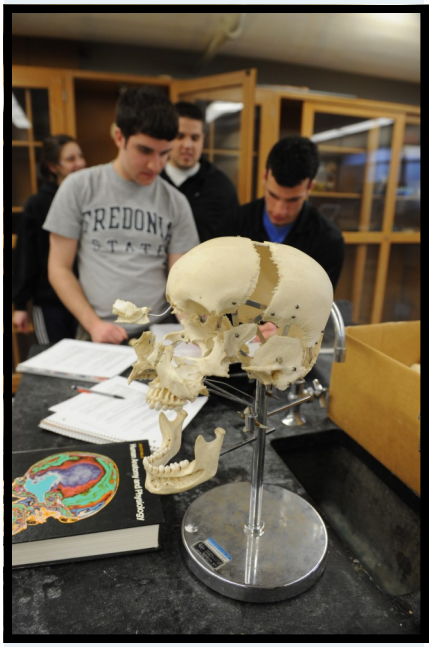
Science Center

The official groundbreaking ceremony occurred September 8, 2011, and construction of the 92,000 square foot Science Center is well under way. At this point in time all of the structural steel is in place and we have a real sense of how wonderful the building will look upon completion! The placement of the supports for all duct work, plumbing, electrical and technology conduit, and the placement and tying of rebar is largely complete on all floors. Most of the concrete has been poured. Ducts are being placed in the basement for the environmental chambers and hangers are being suspended from the ceiling to support the plumbing going to the upper floors.

When complete, the Science Center will allow us to more effectively offer our students real world collaborative opportunities for learning and research. Classroom and laboratory spaces will combine smart technologies and innovative designs to support myriad styles of teaching and learning. Formal and informal spaces will enable collaborations and intellectual exchanges between students and faculty, and new state of the art equipment and instrumentation will support faculty and student research. The Science Center will also include an observatory and greenhouse, an atrium featuring a café with seating and science displays, a science courtyard featuring native plants and examples of local geologic features, student reading rooms and conference rooms. Please visit the Science Center webpage at http://www.fredonia.edu/sciencecenter/ to access our live webcam, our 360 vision camera, a simulated walk-through of the completed science center and information about naming opportunities in the new building.

Scholarly Activities:

The faculty demonstrated significant scholarly activity this year. Faculty published 3 articles in peer reviewed journals (2 with student co-authors), have 5 manuscripts accepted, submitted 2 book chapters, gave 18 scholarly presentations, performed 41 manuscript/textbook reviews, and submitted 10 grants totaling $1,842,000.



Andrew Notaro, Nicholas Perez and friends in Human Anatomy and Physiology lab.

Biology Students Jessica Wooten and Thomas Caggianelli at the 2012 SUNY Fredonia Student Research and Creativity Exposition.

New Biology Department Courses

The Department continued its work in strengthening the pre-health and the molecular biology curriculum. New courses offered during the 2011-12 academic year included:

Human Anatomy and Physiology I and II: This is a two semester sophomore level lecture/laboratory course offered by Dr. Fred Harrington. The course is designed primarily for students interested in careers in the allied health and exercise sciences, for students in adolescence education science programs, and for any student who is looking for a comprehensive grounding in the structure and function of the human body. Laboratory work involved extensive study of prepared slides and models, performing dissections and studying physiological responses using the new, state-of-the art iWorx instrumentation.

Mammalian Physiology and Comparative Vertebrate Anatomy: This two semester upper level sequence offered by Dr. Scott Medler covers anatomy and physiology on an advanced and evolutionary based, comparative level, and is designed primarily for students interested in pre-health (pre-med/vet/dental/optometry). The iWorx instrumentation was used extensively in the Mammalian Physiology lab, with students performing experiments on approximately 10 different physiological systems. Comparative Vertebrate Anatomy focused on the functional anatomy of multiple vertebrate systems. Laboratory dissections focused on the anatomy of the shark and the cat; supplemental dissections of large salamander, lamprey, pigeon, sheep brain, and sheep heart were included. Students also worked with the Visible Human Dissector program as an aid to dissection in the lab, allowing students to alternately build or dissect complex 3 dimensional representations of real human anatomy.

Muscles and Movement: This course taught by Dr. Scott Medler focuses on skeletal muscle biology and the neural control of movement. Skeletal muscle function and motor system diseases including Parkinson's disease, muscular dystrophies, and the effects of aging on muscles were discussed. This course is appropriate for students planning to enter health professions including medical practice, athletic training, physical therapy, or occupational therapy.

RNA Biology: Taught by Dr. Ferguson, the course covers the many roles that ribonucleic acids play beyond the canonical function they serve in biology as messengers between DNA and protein. RNA can serve as both genotype and phenotype by storing information and acting as a catalytic "ribozyme". Students presented papers from the primary literature on topics as diverse as the role of RNA in the structure and function of the ribosome, resistance of bacteria to viral infection, and eukaryotic RNA transport and translational control. This course represents coverage of an important topic for students planning to pursue graduate research in molecular biology or biochemistry.

Molecular Genetics Lab and Advanced Experimental Biochemistry Lab Drs. Ferguson and Fountain taught a joint lab in their lab courses; a new experiment called Selective 2' Hydroxyl Acylation and Primer Extension (SHAPE) was used to probe the structure of the gurken 5' UTR.

News from the Health Professions Advising Office

SUNY Fredonia students and alumni were accepted to medical schools (Buffalo and Stony Brook), NYU Dental and Ohio State Veterinary School. Fredonia is working on an articulation agreement with SUNY Upstate Medical School that will allow high school seniors from rural counties and students from underrepresented groups in medicine to apply to an early assurance program. This is the first agreement that we'll have with an MD school. As it is very important pre-health students get shadowing and interning experiences, any alumni who are willing to let a student get some experiences in a health office can contact Ted Lee (716-673-3816 or theodore.lee@fredonia.edu) to discuss this; any support would be greatly appreciated.

STUDENTS

Biology Honors Program

Biology students must attain a 3.5 GPA to be considered for admission to the program, and must perform a minimum of two semesters of research, produce a formal thesis and offer a lecture to the campus and a private thesis defense to the faculty. We are pleased to announce three of our students graduated with Biology Honors this May; Janelle Gabriel, Steven Gangloff and Alicia Watson.

Janelle Gabriel, Avon Lake, Ohio, majored in Molecular Genetics with a minor in Chemistry. She performed an NSF REU in 2010 at Case Western University and an REU in 2011 at the Summer Scholars Program in Genetics at the University of Rochester. At SUNY Fredonia, she performed research under the mentorship of Dr. Scott Ferguson; her Honors thesis dissertation was entitled, "Experimental Determination of Internal Ribosome Entry Site (IRES) Presence within the gurken mRNA of Drosophila melanogaster". Janelle was accepted into the Ph.D. program of Molecular, Cellular and Developmental Biology with a university fellowship at Ohio State University; she begins her doctoral studies this fall.

Steven Gangloff, Amherst, NY, majored in Biology with a minor in Chemistry. With career aspirations in medicine, Steve completed internships and performed volunteer work at several regional hospitals . He received multiple academic awards and scholarships while at Fredonia, and won the SUNY Chancellors Award for Student Excellence in 2012. At SUNY Fredonia, he performed research under the mentorship of Dr. Scott Ferguson; his Honors thesis dissertation was entitled, "Real Time Visualization of Sqd-grk Interactions within Living Drosophila Oocytes using Trimolecular Fluorescence Complementation". Steve is one of just 160 students out of 4,000 applicants accepted into the School of Medicine and Biomedical Sciences at the University of Buffalo; he begins studies this fall to become a physician.

Alicia Watson, North Tonawanda, NY, majored in Molecular Genetics with a minor in Chemistry. She performed an REU during the summer of 2011 at the Molecular Biology Summer Research Program for Undergraduates at the University of Pennsylvania School of Medicine Gene therapy Program. At SUNY Fredonia, she performed research under the mentorship of Dr. Scott Ferguson; her Honors thesis dissertation was entitled "Trimolecular Fluorescence Complementation Analysis of Sqd-grk Interactions in the Drosophila Oocyte". Alicia was accepted to the Ph.D. program in the Interdisciplinary Biomedical Graduate Program at the University of Pittsburgh; she began her doctoral studies this summer.

The Biology Honors students research activities were funded in part by the Joseph C. and Jane E. (Schuster) Falcone Biology Endowment for Scholarship and Research.

Student Research and Internship Activities

A total of eight research fellowships were awarded to students to conduct biology research at SUNY Fredonia this summer. Two students received fellowships to perform summer Research Experience for Undergraduates (REU) at Virginia Tech University and Marquette University. Twenty Biology Department students gave oral presentations and presented posters at the 2012 SUNY Fredonia Student Research and Creativity Exposition and other professional conferences.

Twenty Biology Department students performed internships over the summer or academic year. Medical Technology internships were performed at Rochester General Hospital, WCA Hospital, and St. Vincent's Hospital, PA; pre-professional health, biotechnology, and environmental microbiology internships were performed at the SUNY Technology Incubator, the Chautauqua County Health Department, Brooks Memorial Hospital and physician offices, pharmacies and veterinary clinics.

The department awarded approximately $40, 000. in scholarships and research fellowships to high-achieving students this year. These awards are made possible in part thanks to your generous contributions to the endowment funds.

Contributions to our scholarships and endowment funds can be made at the online site: www.fredonia.edu/giveonline

As a chartered student organization, the Biology Club was required to organize 4 events last year; the dedicated and enthusiastic club members offered a whopping 27 activities! Events included:

- Cleveland Trip: Zoo, Aquarium, and Science Center
- White Water Rafting at Zoar Valley
- Bio-Lympics 2012—Biology Trivia and Physical Challenge Gameshow
- Korean Student Welcome Event
- Biology Photo Competition
- Biology Potluck Dinner
- Alexander Reserve Invasive Species Pull
- Adopt-a-Beach Cleanup
- Pre-Health Professions Seminar
- "What do They Do?" Biology Faculty Research Presentations

The Biology Club poses for a group photo in the Jewett Hall Greenhouse.

2011 Summer Research Presentations

Fellowship funds to support summer research in the SUNY Fredonia Biology Department come from the Holmberg Foundation Research Award , the Constantine Barker Memorial Fund, and the Dr. Robert Wettingfeld Undergraduate Research Award Endowment.

- Mr. Malachi A. Blundon, Franklinville, NY, Cloning and molecular characterization of the novel mutation, *CA231*, in *Drosophila melanogaster*
  Faculty Mentor: Dr. Scott Ferguson
- Ms. Andréa J. Covey, Geneva, NY, Phenotypic indicators of fitness in the songs of male house crickets Faculty Mentor: Dr. William Brown
- Ms. Shannon J. Gowen, Williamsville, NY, Incorporation of Hemoglobin/Aquaporin into Polymer Foam Faculty Mentor: Dr. Wayne Yunghans
- Mr. Jacob A. Merle, Portland, NY, Translation of *gurken* in *Drosophila melanogaster* and IRES Mediated Translation Faculty Mentor: Dr. Scott Ferguson
- Ms. Michelle L. Sudyn, West Seneca, NY, Maximation of Lipid Production in Algae
  Faculty Mentor: Dr. Frederick Harrington

2012 Scholarship Winners

- **The Yunghans-Mirabelli Biology Achievement Scholarship** – Scott Gergelis, East Amherst, NY
- **Archer and Mabel Fox Memorial Scholarship** – Olivia Melinski, Cherry Creek, NY
- **Adele Maytum Hunter Scholarship** – David DiPalma, Fredonia, NY; Cara Doyle, North Tonawanda, NY; Ramses Rodriguez, Homestead, FL; Tristin Woodard, Central Square, NY
- **Herbert and Marion Mackie Memorial Scholarship** – Jake Braxton, Silver Creek, NY; Kaitlyn Cichocki, West Seneca, NY
- **Alice M. Sam Biology Scholarship** – Cara Doyle, North Tonawanda, NY; William McLaughlin, Mountain Top, PA
- **Willard F. Stanley Memorial Scholarship** – Thomas Caggianelli, Canandaigua, NY
- **Kourelis-Stavrides Award for Outdoor Interests** – Nicholas Catanzaro Jr., Niagara Falls, NY
- **1929 Graduates' Bioethics Award** – David DiPalma, Fredonia, NY

Dr. Scott Medler and research students Steve Whittmore and Jordan Johnson at work. Above left, Steve monitors the ghost crabs in the environmental chamber. At right, Jordan and Dr. Medler in the research lab preparing a protein sample for silver staining.

ALUMNI

Jeff Conroy presents seminar on genomics and healthcare

Jeff Conroy, '87', Co-Director of Core Genomics at Roswell Park Cancer Institute, Buffalo, NY, offered a seminar to the SUNY Fredonia community entitled "Genomics: At the Core of it All". Genomics, once a niche field in genetics, has evolved to encompass several disciplines including agriculture, bioinformatics, evolutionary sciences and medicine. Technological advances and innovative methodologies have pushed Genomics to the forefront, allowing for the development of high-throughput, genome-scale studies that impact all areas of biology. Roswell's long standing history and contribution to the Human Genome Project through clone generation, high throughput mapping and array technology development have led to numerous discoveries, and paved the way for next generation strategies that promise to revolutionize healthcare. Jeff ended his presentation with reflections on his journey from SUNY Fredonia student to Co-Director of the Genomics facility.

Joe and Jane (Schuster) Falcone honored at 2011 Homecoming

Joe and Jane Falcone, graduates of the class of '74, were honored as Outstanding Alumni at the 2011 Homecoming Brunch. They own and operate Falcone Farms in Silver Creek, NY; one of the most successful farming operations in Western NY. Falcone Farms include 500 acres of concord grapes and 2,200 acres devoted to the cultivation of beans, vegetables, apples and small grains. Joe was a graduate student and Jane an undergraduate student in the Biology department when they met; both studied under Dr. Irvin Schmoyer. We are most grateful to Joe and Jane for their continuing support of SUNY Fredonia through the development of the Joseph C. and Jane E. (Schuster) Falcone Biology Endowment for Scholarship and Research fund which will provide scholarships to Biology majors. The greenhouse in the new Science Center will bear their name.

Dr. Ken Mantai, Dr. Wayne Yunghans, Dr. Allen Benton, Joe Falcone, Dr. Moti Sharma, Dr. Kevin Fox, John Bergenstock, Gary Koeppel, Don Zelazny, Fred Guerriero and Renee Bush enjoyed catching up at the Biology alumni breakfast at Homecoming 2011.

Jewett Hall 50th Anniversary Celebration Highlights

For more details go to: http://www.fredonia.edu/department/biology/news/jewett50thcelebration.asp

Friday, September 28th

- 4:00-5:00 PM—Keynote Seminar, Dr. Dennis Thiele, '78, 101 Jewett Hall
- 5:00-6:00 PM—Reception, Student Poster Display, Jewett Hall Lounge & Lobby

Saturday, September 29th

- 9:00-11:00 AM—Biology Coffee & Donuts, Jewett Hall Lobby
- 1:00-4:00 PM—Science Alumni Conference, Fenton Hall
- 5:00-6:00 PM—Natural History Tours, College Lodge
- 6:00-7:00 PM—Beer & Wine Bar, College Lodge
- 7:00 PM—Dinner, Reflections & Reminiscings, College Lodge

Alumni Portal

If you have not yet visited the Portal, please do so and fill out an alumni survey, join the Biology group and indicate your preference for how you wish to receive future newsletters. Go to http://fredonia.edu/biology/ and click on 'For Alumni'. We also encourage you to submit your reminiscences about your time in Jewett Hall or your recent accomplishments that you may want to share with other alums.

Dennis Thiele, Ph.D., to be honored at Homecoming 2012

Dr. Dennis Thiele, ’78, will be honored as an Outstanding Alumnus at the 2012 Homecoming Brunch. He will offer the keynote Biology seminar at Homecoming entitled, "The Biology of Copper: From Mammalian Development to Anti-Microbial Weapon". As a Biology student at SUNY Fredonia, Dennis performed undergraduate research on the histone and non-histone proteins of soybean nuclei under the mentorship of Dr. Val Dunham and Dr. Wayne Yunghans. He received his B.S. in Biology from SUNY Fredonia, his Ph.D. in Microbiology from Rutgers University, his postdoctoral training in the Laboratory of Biochemistry at the National Cancer Institute, National Institutes of Health, Bethesda, Maryland, and is currently the George Barth Geller Distinguished Professor in the Department of Pharmacology & Cancer Biology at Duke University. Dr. Thiele’s research seeks to decipher how organisms regulate their growth, development and proliferation through establishing and maintaining proper homeostatic control mechanisms.

Faculty and Emeriti News

Dr. Wayne Yunghans retires August 2012

Dr. Yunghans shares the following thoughts on his retirement:
“I will retire this summer after 38 years at the chalkboard. Spring 2012 was my last official semester, although I did teach the Plant Identification summer course for students. It has been a rewarding and satisfying career teaching students the aspects of the ever-expanding topic of cell biology. It has been engaging and stimulating working on many research projects including: Steroid hormone interactions at the membrane, phosphorylation of membrane proteins and soybean DNA polymerase, methane from grape pomace, luciferase and green fluorescent gene injection into fish eggs and Chlamydomonas, mint pathway genes and biochemistry, incorporation of proteins and aquaporin into polyurethane foam, UV light absorption by insect wings, and recently the undecanone herbicide treatment of Japanese Knotweed and Phragmities. Many undergraduate and graduate students worked on these projects and gained experience in lab activities and developed abilities to generate research results. To those students, I am indebted and offer many thanks for your efforts. The faculty have been very supportive and collegial over the years. I wish to offer a special thank you to secretaries: Judie Mancuso, Mary William, Adele Sam, Julie Sticek, and Dawn Hunt for providing outstanding secretarial assistance over many years of service to faculty and students of the Department of Biology. To everyone, I offer my deep appreciation. Thank you. Dr.Y.”

The Biology Department will conduct a search for a cell biologist in the fall of 2012. Information will be available at the Human Resources webpage http://www.fredonia.edu/humanresources/ in early September.

Dr. William Brown was promoted to Full Professor. He published a paper in PLOS One with two former graduate students that was covered in the Science section of The Huffington Post. Bill also had a postdoctoral student from Australia who came to collaborate on praying mantis research.

Dr. Scott Ferguson published an article in the Journal of Cell Science about the role of insulin signaling during Drosophila development. He is proud of the four graduates from his lab that are attending Ph.D. programs and Medical School. Dr. Ferguson also authored several grants to the National Institutes of Health and the National Science Foundation and attended conferences sponsored by the Genetics Society of America and the NIH.

Dr. Matthew Fountain received an NSF ROA Grant with his collaborator Janet Morrow at the University of Buffalo last summer. His research on the structure of Zn(II) macrocyclic compounds bound to a thymine bulge containing DNA resulted in the publication, "Structural basis for bifunctional zinc(II) macrocyclic complex recognition of thymine bulges in DNA". Inorganic Chemistry, 2012 May 7;51(9):5444-57.

Dr. Karry Kazial celebrated 10 years as a member of the Biology Department and presented, "Effect of artificial night lighting on little brown bat behavior" with graduate student, Laura Alsheimer, at the 41st Annual Symposium of the North American Society for Bat Research in Toronto, Canada. Current projects include effects of enrichment on Sulawesi crested macaque behavior at the Buffalo Zoo with current graduate student, Danielle Smith.

Dr. Ted Lee had a paper on the botulism research project in Lake Erie published last summer: "Clostridium botulinum type E in Lake Erie: Inter-annual differences and role of benthic invertebrates" Journal of Great Lakes Research, Vol 37, Issue 2, June 2011, Pages 238–244. He also incorporated clicker technology in his Principles of Biology II class with very positive results.

Dr. Scott Medler taught several courses including mammalian physiology and comparative anatomy, and got his research lab up and running. Several undergraduate researchers helped in the lab, collecting data from ongoing projects focused on skeletal muscle fiber types. Over the summer, Dr. Medler is working with three undergraduates on two different research projects involving skeletal muscle biology. He is also editing two book chapters he has coauthored, and preparing a research paper for submission.

Dr. Jon Titus and his students continue to research the effect of invasive non-natives on the flora of western New York by spending lots of time with Japanese knotweed and garlic mustard. He also spends time in swamps collecting vegetation data before the Emerald Ash Borer reaches Chautauqua County.

Dr. Allen Benton hopes to attend the Jewett Hall 50th Anniversary celebration, and looks forward to seeing many alumni. Email address: marginal@mailbug.com

Dr. Kevin Fox sends the following message to alumni: "I'm looking forward to seeing many of you at the Jewett 50th Anniversary bash on Homecoming Weekend. It's hard to believe that Biology will abandon Jewett after she has served us so well all those years. It especially chokes me up to realize that I must clean my stored junk out of the basement. All my old grade books are there somewhere! If any of you would like to discuss your Zoology grade please bring your old exams to Homecoming." Email address: KFox@netsync.net

Dr. Ken Mantai would like alumni to know that "It's been 7 years now since I retired and life is good, but I really miss the Costa Rica trips! I still read Nature, Science, Scientific American and the Scientist in an effort to stay current. I help the DEC do brook trout stream improvements to protect the few wild brook trout streams in Western New York. I also help them do stream shocking to keep counts on wild trout populations in several streams in Chautauqua and Cattaraugus Counties. The DEC guys are great to work with and the work, although hard, is fun, especially when we find 21 inch brown trout. I am really looking forward to seeing many of you at the 50th Anniversary of Jewett next fall, please try to attend if you possibly can!" Email address: Kenneth.Mantai@fredonia.edu

Dr. Moti Sharma hopes to attend the Jewett Hall 50th Anniversary celebration, and looks forward to seeing many alumni. Email address: Sharma@netsync.net

Dr. Ken Wood recently shared memories of the early days in Jewett Hall. Ken arrived in 1965, three years after the building opened. He recalls the department had large numbers of zoological models, many of which can now be found in the basement. Chromic acid solutions were routinely used to clean glassware; lab coats coming into contact with the solution displayed interesting patterns of color and deterioration! Email address: caldy23@yahoo.com

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Fredonia NY 14063

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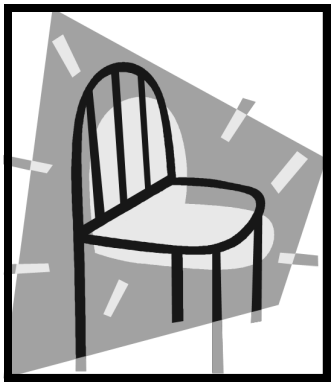

Message from the Chair…

Greetings to our alumni!

Ancient Romans recognized Janus as the god of beginning and transitions. He is depicted as having two faces: One looking to the past, one to the future. Those of us who regard Jewett Hall as our second home are keenly aware of the past, the future, and the impending time of transition. In September 2012, we will look back and celebrate 50 years of science education in Jewett Hall. Shortly thereafter, we will begin preparing for our move to the new Science Center, and a new era of science education. We will also say so long and thank you to Dr. Yunghans for 38 years of dedicated service to SUNY Fredonia and the Biology Department, and we will begin the search for his successor. It is a time for memories and reflections of the past; a time for dreaming big dreams and planning for the future. You are an important part of the legacy of Jewett Hall. We hope you will celebrate the past with us by attending the 50th Anniversary celebration on September 28-29, and that you will continue on with us as we prepare for new adventures in the Science Center.

Thank you for all you do to support the department and our efforts to provide excellent educational opportunities for our students; your generosity allows us to offer them scholarships and summer research fellowships. Please feel free to email or call me with your ideas and comments (patricia.astry@fredonia.edu, 716-673-3283), and I hope to see many of you at the 50th anniversary celebration!

My thanks to Mrs. Dawn Hunt for her invaluable assistance in the preparation of this newsletter.

Best regards,
Patricia Astry