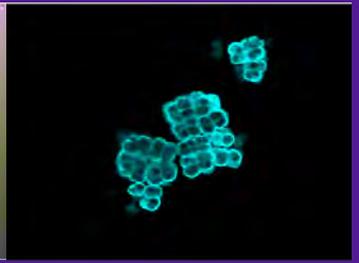
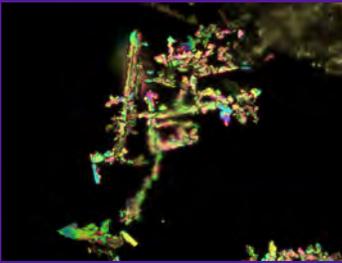


Biology Advising Newsletter



Rhode Island College

March 2012

A Message from Biology Department Chair, Dr. Eric Hall

The Spring semester is well underway, summer is just around the corner and another Fall semester after that. As college professors this is the cycle of our lives and what makes it most interesting and fun are the students who join us for the brief ride from freshman to college graduate. Although you may often think that our goals are to fail students or make your lives miserable please think again. As Biologists we survived the same educational hurdles and accomplishments that you are now experiencing. We (the faculty) are very aware of how difficult biology can be but I want you to do one very important thing when you go to classes this semester and in the future. Remember that without the wood and the nails you don't have a house. A BS or BA degree in biology is supplying the foundation you need to build your house of knowledge. Every class you take provides a board or a nail—make them the best quality you can!

The Department of Biology and Fogarty Life Science continue to experience change with the ongoing transition to the BS in Biology, renovations to facilities, and a new general education plan going into effect for new students in Fall 2012. Building improvements include the completion of the new sprinkler system in Fogarty along with renovations to the stairwells. All doors and locks in FLS will be changed over the next few years. In the first phase many of the doors have been replaced and keys to these new doors will be controlled strictly by Security. In the future, doors to research laboratories and prep rooms will be converted to card swipe access. Other major renovation projects in FLS include the conversion of FLS 059 into additional faculty/student research space and the Champlin Foundation-funded renovation of FLS 242 (Microbiology Laboratory) and FLS 103b (Ecology Laboratory).



Department chair **Eric Hall** (right) presents the 2011 Mary Keefe Award to **C. J. Pickett** at the Biology Department Holiday Party.

Course Information

To help you with your planning, here is the list of biology “electives” (upper-level courses not offered every semester) that are tentatively scheduled for the upcoming year. Please note that 500-level courses are open to graduate students, **and advanced undergraduate students (senior status) with permission from the instructor.**

Fall 2012

BIOL 261	The World’s Forests ⁴	Dr. de Gouvenain
BIOL 354	Plant Growth and Development ¹	Dr. Roberts
BIOL 435	Comparative Animal Physiology	Dr. Hall
BIOL 450/550	Topics: Ecotoxicology	Dr. Merson
BIOL 550	Topics: Biology of Cancer	Dr. Avissar

Spring 2013

BIOL 300	Developmental Biology of Animals ^{1,2}	Dr. Meedel
BIOL 324	Vertebrate Zoology ¹	Dr. Merson
BIOL/CHEM 420	Biochemistry of Proteins and Nucleic Acids ³	Dr. Almeida
BIOL 431	Immunology	Dr. Kolibachuk
BIOL/PSYC 445	Behavioral Neuroscience	Dr. Threlkeld
BIOL 531	Mammalian Endocrinology	Dr. Anthony
BIOL 533	Research Methods in Molecular Biology	Drs. Spinette & Roberts

- ¹ **Organismal elective** for Biology BA and BS.
- ² New prerequisite: BIOL 111/112, BIOL 221 and completion of or concurrent enrollment in BIOL 320.
- ³ Starting Fall 2011, changes are in place for courses in biochemistry as follows:
BIOL 410 (CHEM 410) Biochemistry I is now
BIOL 420 (CHEM 420) Biochemistry of Proteins and Nucleic Acids.
The prerequisite for BIOL 420 is CHEM 206.
BIOL 411 (CHEM 411) Biochemistry II is now
BIO 421 (CHEM 421) Biochemistry of Lipids and Carbohydrates.
The prerequisite for BIO 421 will be CHEM 206.
Biochemistry of Proteins and Nucleic Acids is cross-listed as BIOL 420 and CHEM 420 and Biochemistry of Carbohydrates and Lipids is cross-listed as BIOL 421 and CHEM 421. If you are using either of these courses toward a minor in Chemistry, it is advised that you register as CHEM. If you are using them as Biology electives, it is advised that you register as BIOL.
- ⁴ Satisfies the **Core 4** General Education distribution requirement.

Also of note:

Both BIOL 241 (Biology Colloquium 0.5 credits) and BIOL 460 (Senior Seminar, 3 credits) are offered every Fall and Spring semester.

Research

Contact a faculty member if you are interested in doing a research project (BIOL 49X). Proposals are due April 15 (for Summer or Fall) or November 15 (for Spring).



C.J. Pickett, Heather Wiederkehr, and Chelsea Gibbons examine specimens in **Dr. Meedel's** Developmental Biology lab.

Featured Courses

Fall 2012

BIOL 261 - The World's Forests

This Core 4 course, as with all core courses, will be reading- and writing-intensive, with emphasis on critical thinking and communication. We will survey the three different forest types of the world (boreal, temperate, and tropical), their ecology, their inhabitants, as well as the social, political and cultural forces that have shaped these forests over time and that now are influencing their future. Students' projects will include a poster, three papers, and four short oral presentations. If you like trees and are interested in learning about forests, come and join us! 4 credits, offered by Dr. de Gouvenain (rdegouvenain@ric.edu).



BIOL 354 - Plant Physiology

This course surveys a variety of topics in plant physiology, including plant cell structure, photosynthesis, genetic controls on morphogenesis and the anatomical structures associated with these processes. Lecture and laboratory. 4 semester hours. Prerequisites: required - BIOL 111 and 112. Offered by Dr. Eric Roberts (eroberts@ric.edu).

BIOL 435 - Comparative Animal Physiology

Look out at the world around you. There are woodlands, ponds, oceans, mountains, different climates and many different animals living in those environments. How have organisms evolved and survived in their worlds? Comparative physiology explores the diverse mechanisms that animals exhibit for coping with their environment. 3 credits, offered by Dr. Hall (ehall@ric.edu).

BIOL 450/550 - Topics: Ecotoxicology

Ecotoxicology integrates the disciplines of ecology and biology with toxicology (the science of poisons) to describe, assess, and predict the impacts of both naturally occurring and anthropogenic chemical toxicants on the biosphere. Using a seminar format and primary literature, we will examine how environmental conditions and contaminant chemistry interact with organisms' distribution, trophic level, life-history, and physiology to influence the susceptibility of humans, domestic animals, and wildlife to toxic chemicals. These case studies will demonstrate the methods put into practice by ecotoxicology researchers in assessing risk and impact of chemical contaminants on living organisms. This course is in hybrid format with one day per week meeting face-to-face and the other class day is spent with online interactive activities, including data mining and chemical fate modeling. 3 credits, Dr. Merson (rmerson@ric.edu).

BIOL 551 - Topics: The Biology of Cancer

This course will track the events in the life of a cell that convert it gradually from a normal "law abiding" citizen of the body into a rogue individualist and eventually into a terrorist. We will discuss the unfortunate accidents of mutations creating oncogenes and damaging tumor suppressor genes, the effects on the cell cycle, the gradually growing resistance to hormonal regulation and apoptosis. We will follow the process of clonal selection, tumor growth, angiogenesis, and the changes that result in increasing invasiveness and metastasis. We will explore the relationship of cancer to chronic inflammation and infections, and review current strategies of treatment and prevention. Textbook: Lauren Pecorino's *Molecular Biology of Cancer: Mechanisms, Targets and Therapeutics* (Second Edition). ISBN 978-0-19-921148-7 (Oxford University Press). Prerequisites: Genetics and Cell and Molecular Biology. 3 credits, offered by Dr. Avissar (yavissar@ric.edu).

Club News

The Biology Club



The Biology Club strives to enhance communication between biology students and faculty, increase awareness of biology and medical technology issues and current events, and increase the sense of community in the biology department.

For information on upcoming trips, meetings, and how to join, send an email to: cpickett_1503@email.ric.edu

Biology Club members Noor Bowzan, Sabrina Elgar, C.J. Pickett and Nicole Cote, and advisor Eric Roberts, made a trip to the Harvard Museum of Natural History in Cambridge MA, November 2011.

National Science Teachers Association - RIC Student Chapter



The NSTA is a member-driven organization dedicated to improving science education across all grade levels and fields of study. Through professional development opportunities, volunteer work, and basic networking we hope to better prepare our members for successful and rewarding experiences as science educators.

For more information, email chapter President, **Samantha Whitson** (swhitson_6021@email.ric.edu).

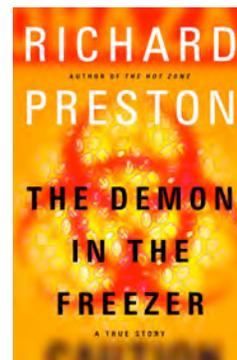
Marc Antaya drives a scuba tank-propelled go cart at the 2011 NSTA Area Conference in Hartford CT last October.

Biology Book Club

This winter break the Biology Book Club entered the dark side of biology and the world of biological weapons. We read Richard Preston's [The Demon in the Freezer](#). If you haven't read it, pick up a copy and check it out. (If you can't find it in the library, ask **Dr. Roberts** or **Dr. Conklin** to borrow a copy.)

Whether you read it or not, we hope you were able to join us for one of our scary microbiology events earlier this semester. The book discussion will be held on March 30, 2012 at noon in FLS 200. This event includes lunch and a student drawing for an Amazon gift card!

Then, look for notices announcing a short meeting during finals week when we choose a book to read over the summer!



News and Announcements

Biology Colloquium Series

Have you been attending this semester's biology seminars? If so, you've seen some great examples of biology research in action. There are a few more scheduled for the rest of the semester, so be sure to catch one or more. There are also lots of student presentations given by Senior Seminar students. Come out and support fellow students and see what goes on in Senior Seminar! **Dr. Anthony, Dr. Govenar and Dr. Conklin** are teaching BIOL 460 this semester.

Did you know that 2 semesters of BIOL 241 (Colloquium, 0.5 credits each) is required of all new biology majors and all continuing students who intend to receive the BS degree? **Dr. Spinette** is running the course this semester. Contact her for more information.

All seminars are held in FLS 050. Seminars on Thursdays start at 4:00 pm. Seminars on Wednesdays start at 12:30 pm. The remaining seminars on the schedule this semester are:

- Thurs Mar 22 **Steve Vollmer**, Northeastern Univ, "Innate immunity and disease resistance in tropical reef corals."
- Thurs Mar 29 **Yael Avissar**, RI College, "Sabbatical research: Microbial antibiotic resistance."

Senior Seminar Student Presentations:

- Thurs Apr 5 **Cynthia Gaudet, Christopher Mancini, Ilona Nagornaya**
- Wed Apr 11 **Amanda Ruggerio, Ines Brandon, Fabian Mendis**
- Thurs Apr 12 **Chelsea Gibbons, Alise Lombardo, Evelyn Hipolito**
- Wed Apr 18 **Jennifer Watson, Xenia Fernandez, Sarah Cote**
- Thurs Apr 19 **Megan Radka, Rebecca Clarke, Franklin Guzman**
- Wed Apr 25 **Erika Lindberg, Sara Valletta**
- Thurs Apr 26 **Jason Gaffney, Naih Artey**
- Thurs May 3 **Brendalee Viveiros, Timothy Larson, Brigette Banta-Cain**

NEWSFLASH

The Biology Department wishes to congratulate recent Ridgway F. Shinn, Jr. Study Abroad Fund Award Winner Breanna Canning. She will study next year in Panama!

Interested in doing research and earning honors in Biology? Get started by checking out the **Honors Program in Biology** page on the RIC website.

www.ric.edu/biology/generalInfo.php

Students interested in starting a research project should contact potential faculty mentors now. Proposals for independent study (research for credit) for Summer or Fall are due April 15th.

Contact **Dr. Spinette, Dr. Roberts, or Dr. Matsumoto** for more information on Honors.



Honors students **Daniel Reeves, Lorenzo Crumbie, Janis Hall and Amanda St. Germain** celebrate their graduation at Commencement 2011.

Where are they now?



**Hanane
(Hamdaoui)
Azzaoui**

**BA Biology,
Chemistry
minor, 2009**

Upon my graduation I landed a job with Armstrong Pharmaceuticals as a Quality Assurance Specialist and currently hold a Quality Engineer position (Clinical Complaints) at Waters Corporations, a company that designs and manufactures ultra performance liquid chromatography (UPLC), high performance liquid chromatography (HPLC), chromatography columns, chemistry products, mass spectrometry (MS) systems, and thermal analysis and rheometry instruments.

I am also pursuing my MS in Regulatory Affairs for Drugs, Biologics, and Medical Devices at Northeastern University in Boston and I expect to graduate in spring 2012.

My degree from RIC gave me the education and confidence necessary to enter the work force and start my career. I find from time to time that I still draw on the knowledge I gained at RIC. The bottom line is that I am a proud RIC alumnus.



Daniel Reeves

**BA Biology,
Chemistry
minor, 2011**

I am currently employed by the U.S. Environmental Protection Agency as a student services contractor, in northern Minnesota. As part of the Mid-Continent Ecology Division, located on the shores of Lake Superior, my mission is to assist in the assessment of toxic effects of endocrine-disrupting chemicals (EDCs) on the reproduction and development of freshwater fish. Recent experiments have analyzed the impact of sublethal concentrations of fungicides (ex. vinclozolin), insecticides (ex. diazinon), and hormones (ex. estradiol) on the growth, fecundity, and reproductive histology of the small Asian killifish, medaka.



Holly Dirks

**BA
Secondary
Education -
Biology, 2010**

Since graduation, I have been working at Brown University as a Research Coordinator in the Advanced Baby Imaging Lab (www.babyimaginglab.com). We believe developmental disorders, such as autism, are caused by abnormal brain development during the first 5 years of life. However, we do not yet know how the healthy brain develops during this critical time period. Our study aims to 'map' this normal development so that we can understand what is different in the brains of children with autism, ADHD and epilepsy. We are looking specifically at myelin development, and we are able to see this with the use of Magnetic Resonance Imaging (MRI). All of our participants also meet with our pediatric neuropsychologist, who completes a cognitive assessment. This way we are able to correlate myelin development with behavior.

Since I started working at Brown I have helped to develop the research and we are now the largest healthy baby imaging center in the world. I have also traveled to Iceland and just recently to London, where I presented our imaging technique to researchers at King's College. RIC gave me the skills and the confidence to move into this challenging field.

Are you interested in a PhD, medical school or other professional school, but not ready for the long-term commitment? Then consider entering the Masters of Arts in Biology Program at RIC. Visit our website for more information: http://www.ric.edu/biology/program_ma.php

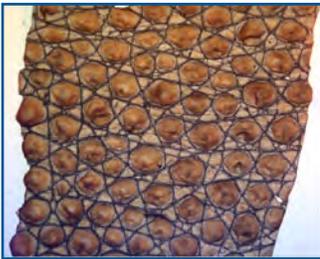
News and Announcements

STEM Quahog Scholarship Program

The STEM Quahog Scholarship Program is intended to provide financial aid to undergraduate students majoring in the STEM disciplines (science, technology, engineering, and mathematics) by providing up to \$5000 in grants per year toward their financial need, as determined by the RIC Office of Financial Aid. In order to qualify, students must, among other things, be US citizens or permanent residents, major in a STEM (Science, Technology, Engineering, or Math) field, and be eligible for financial aid. For further information, contact **Dr. Roland de Gouvenain**.



Photo Credits



Title banner photos were taken by students in BIOL 450 Topics: Light Microscopy, Fall 2011 offered by **Dr. Merson** and **Dr. Roberts**. See corresponding photo captions below.

- 1) Nupro prophylaxis dental paste observed using polarization microscopy. **Eric Ricci**.
- 2) Mayfly (whole mount) viewed using fluorescence microscopy. **Iqra Rehman**.
- 3) *Ciona intestinalis* (sea squirt) juvenile imaged using differential interference microscopy. **C. J. Pickett**.
- 4) Confocal fluorescence image of *Sarcina ventriculi* cell packet. **Seamus Kiernan**.
- 5) Gecko skin viewed using brightfield microscopy. (This page.) **Janis Hall**.

Biology Club and NSTA photos were submitted by club presidents **C.J. Pickett** and **Samantha Whitson**.

Alumni **Hanane Azzaoui**, **Daniel Reeves** and **Holly Dirks** submitted their own photos.

Keefe Award, Developmental Biology, and Commencement photos were taken by **Dr. Conklin**.

Clip art sources: Tree - Clipart Graphics; medaka fish - Daniel Ocampi Daza; clams - iClipart.