

BIOLOGY REGISTRATION NEWSLETTER

Spring 2008

(Nov. 7th – Nov. 16th)

I. Registration NEWS and UPDATES:

- A. Four different courses in spring 2008 will be listed under the Topics in Biology, BIO 470 heading. Two of these were offered for the first time last year (Conservation Biology, section A, and Genomics and Bioinformatics, sections B and B01). TWO of these are *NEW* biology option courses. The Cell Biology of the Nucleus (sections C and C01) will be taught by Dr. Segura-Totten. Aquatic Ecology (sections D and D01) will be taught by Dr. Pecor. Please find detailed descriptions, with pre-requisites, under the “Notes on Individual Courses” section of the newsletter (pages 3 and 4).
- B. BIO 341, Biology of the Seed Plants, will again be offered in the spring (this was not listed in the previous Newsletter). This course meets the organismal requirement.
- C. For students *beginning* to fulfill their Liberal Learning requirements (typically freshmen and sophomores): Consider fulfilling your Liberal Learning requirements following an *Interdisciplinary Concentration*. A description of these can be found at <http://www.tcnj.edu/~liberal/concentrations/index.html>.
- D. For any biology major interested in traveling abroad, be sure to contact the Office of Global Programs, and speak to your advisor.
- E. **Dr. Klug’s advisees:** While Dr. Klug is on sabbatical you have been temporarily reassigned to Dr. Fangboner. Note that this will *not* change on TESS, but that you do need to make an advising appointment with Dr. Fangboner to discuss your plans, and have your hold flag removed.
- F. Remember: it is ultimately each student’s responsibility to monitor his or her progress toward graduation, so USE THE WEB!!! There are all sorts of excellent resources at YOUR disposal on the web, so be sure to get yourself completely informed before seeing your advisor. Two pages that are of particular value are the advising site at <http://www.tcnj.edu/~advising> and liberal learning at <http://www.tcnj.edu/~liberal>.

II. See your advisor: NOTE: a registration hold has been placed on all biology majors; see your advisor to determine your status.

- Advisor assignments – this can be obtained through TESS, or by consulting the updated list in the department’s Main Office. If you wish to change your advisor please see Dr. O’Connell.
- Students registering for Internship (BIO 399) are to see Dr. Norvell or Dr. Erickson.
- Students registering for Independent Research (BIO 493) are to see Dr. Lipton and the faculty member with whom they will do the research.
- College-wide Honors students seeking BIO 476 or 477 are to see Dr. Fangboner.
- For those interested in Biology Departmental Honors, see Dr. Fangboner.

Bring the following with you when you meet with your advisor:

- SPRING 2008 class choices (be sure to create tentative schedules)
- Your FILLED OUT Program Planner, available on the Records and Registration web page: <http://www.tcnj.edu/~recreg/programplanners/>.
- A tentative list of courses for your remaining semesters at TCNJ
- Questions you have about your academic progress at TCNJ and your future beyond TCNJ

III. What to register for:

A. Remember the course numbering system in Biology follows the guidelines below:

100-level courses – those that require no pre-requisite

200-level courses – core courses

300-level courses – those that require Themes (BIO 185) as a pre-requisite

400-level courses – those that require Themes and at least one additional pre-requisite

B. Biology major courses offered **Spring 2008**

All core courses (BIO 185, 211, 221, 231, 498)

BIO 311	Laboratory Techniques in Biotechnology
BIO 341*	Biology of Seed Plants
BIO 342*	Biology of the Invertebrates
BIO 352	Biometry
BIO 370	Oceanography
BIO 413	Microscopic Anatomy
BIO 461	Evolution
BIO 470	Topics in Biology:
Section A	Conservation Biology
Section B, B01	Genomics and Bioinformatics
Section C, C01	Cell Biology of the Nucleus
Section D, D01	Aquatic Ecology

*these courses fulfill the organismal requirement

C. Biology options *likely (not guaranteed)* to be taught in **Fall 2008**

BIO 312*	Microbiology
BIO 332*	Comparative Vertebrate Anatomy
BIO 343*	General Entomology
BIO 411	Physiology
BIO 444	Immunology
BIO 451	Developmental Biology
BIO 480	Neurobiology

Additional courses are likely to be added to this list for the fall.

IV. Notes on selected individual courses

BIO 302 – Human Anatomy and Physiology II

Note: This course does not serve as an option for BIOA majors

This is the Human Anatomy and Physiology course recommended for students wishing to pursue Physical or Occupational Therapy and for those who are BIOT, ELBI and ECBI. However, BIO 301 is not recommended for medical school preparation.

BIO 399 – Biology Research Internship

Credit is granted based on research experiences conducted off campus in the summer. Please contact Dr. Norvell or Dr. Erickson with any questions. **Note: You must have an agreement with either Dr. Norvell or Dr. Erickson prior to registering for this course during the spring semester registration period.**

*****NOTE: you may have 1 to 2 courses of either Independent Research or Internship count toward biology options. Any credit beyond two courses will count as elective credit toward graduation.**

BIO 470 (section A) Topics in Biology: Conservation Biology

Pre-requisite: BIO 221

Conservation Biology is a relatively new discipline in biology, focusing on the preservation of global biodiversity. We are currently living in a time of global, mass extinction, primarily as a result of human activity. Conservation Biology as a discipline has two primary objectives. First, we are interested in documenting the impacts of human activity on biodiversity, and second, we hope to develop practical solutions to prevent extinction. Topics covered in this course range from the study of population genetics and ecology, to the study of environmental economics, and the design and management of nature reserves.

BIO 470 (sections B and B01) Topics in Biology: Genomics and Bioinformatics

Pre-requisite: BIO 231 (or, BIO 211, or BIO 221, with permission of instructor)

This course will cover theoretical and practical components of genomics and bioinformatics. The major topics will include mapping and sequencing genomes, sequence alignment of nucleic acids and proteins, haplotype maps, analysis of complex traits, parallel profiling of gene expression, proteomics, phylogenetic analysis, and data mining. The laboratory will begin with the *in silico* analysis of gene families, continue to the formulation of a testable hypothesis about gene function, writing a mini-grant for peer review, testing of the hypothesis in a model organism, and conclude with a formal presentation of the data generated.

BIO 470 (sections C and C01) Topics in Biology: Cell Biology of the Nucleus

Pre-requisite: Bio 211

Until fairly recently, the nucleus was viewed as a static organelle which functioned to protect the genome and mediate transcription of DNA. We now know that the nucleus is a dynamic organelle that is organized into domains that mediate distinct functions. During the last decade, many human diseases affecting muscle integrity, fat distribution, bone formation, and aging, to name a few, have been linked to mutations in nuclear proteins. This course will study how the structure of the nucleus mediates the functions that this organelle serves throughout the cell cycle. Additionally, we will examine current experimental models that strive to explain how disrupting nuclear structure leads to disease in humans. Within the laboratory component, students will design original experiments utilizing an *in vitro* nuclear system derived from *Xenopus laevis* to test the function of particular nuclear proteins in promoting the dynamic changes that occur during nuclear assembly and disassembly.

BIO 470 (sections C and C01) Topics in Biology: Aquatic Ecology

Pre-requisite: BIO 221

“If there is magic on this planet, it is contained in water.” This quote from the naturalist Loren Eiseley captures the fascination with aquatic systems exhibited by both scientists and non-scientists alike. In this class we will explore the world of lakes and rivers, which despite their commonplace appearance represent only 1.5% of the total water on Earth. A combination of lectures, discussions, and field study will be used to explore the ecology of fresh waters. Topics for consideration will include the physical properties of aquatic systems, adaptations of aquatic organisms, aquatic communities, and freshwater fisheries.

BIO 493 – Independent Research

This course involves laboratory or field research under the direction of a faculty member at TCNJ and can be taken for 1 course unit/semester (a two semester project is recommended). Typically juniors and seniors enroll in Independent Research. Interested students should *contact individual faculty members* with whom they are interested in working in order to determine whose lab they will work in. There are three requirements for enrolling in Independent Study:

- Overall GPA of 2.5 or better
- Form (available in Biology Main Office) filled out with faculty mentor and a copy filed with Records and Registration and one with Dr. Lipton no later than the end of the first week of the Spring semester.
- Poster presentation and research paper at the end of the research

*****NOTE: you may have 1 to 2 courses of either Independent Research or Internship count toward biology options. Any credit beyond two courses will count as elective credit toward graduation.**

V. Special Area Advisement

A. *Graduate Advisory Committee.*

The Graduate Advisory Committee will advise students planning to attend graduate schools, either at the Masters or Ph.D. level. Members of this committee advise students on topics such as when to apply to graduate schools, where to apply, when to take the GREs, what to ask on an interview, etc. The current chair of this committee is Dr. O’Connell.

Note: deadlines for application to PhD programs are typically late fall, while deadlines for Masters programs are sometimes late fall, but often not until the spring before matriculation.

B. *Medical Careers Advisory Committee.*

All students interested in a health care profession (physician, dentist, optometrist, physical therapist, physician assistant, occupational therapist, podiatrist, veterinarian, pharmacist and others) should seek out one of the advisors of the Medical Careers Advisory Committee. The Chair of the committee is Dr. O’Connell. Pre-health advisees are encouraged to attend ASMA Club meetings.

Note: medical schools have rolling applications; therefore ideally, students should apply to medical schools the *summer before their senior year*. Please visit the following link for more information:

http://www.tcnj.edu/~moconnel/medical_careers_advisory_committ.htm

VI. ALERTS

- A. It is ultimately each student's responsibility to monitor his or her progress toward graduation. Be sure to meet with your faculty advisor regularly, and direct questions to the Registrar's office for official approval of your program.
- B. All graduating seniors are encouraged to visit Career Services to begin work on a resume and to open a permanent credentials file. All seniors seeking employment will need them immediately.
- C. OVERLOAD: You may carry up to 18 credits without special permission. A 3.3 cumulative GPA, sophomore status or above and *permission from your advisor* (i.e., meet with them first!) and from Dr. O'Connell are needed to carry 19-20 credits.
- D. Be aware of course *prerequisites*. If you have taken a prerequisite at another college and you are denied enrollment in TCNJ course because TESS does not recognize this fact, obtain a note from Dr. O'Connell and register in person.
- E. HOW TO HANDLE TIME CONFLICTS: If two desirable courses overlap in their scheduled times, it is sometimes possible that arrangements can be made with the respective instructors so that you can take both courses. Consult with the instructors of both courses. If some arrangement can be made, bring a note from the faculty involved to Dr. O'Connell, who will need to approve the time conflict override before you register. You will need to register for the courses with the conflict in person.
- F. HOW TO HANDLE CLOSED SECTIONS: If a biology section you *need* (as determined by the instructor and Dr. O'Connell) is closed, see the instructor of the course to determine whether you can be signed in over the cap. If the instructor allows you to be signed in, then a note (which can be an e-mail from the instructor to Dr. O'Connell) must be sent from the instructor to Dr. O'Connell. If the section that closed is in a non-biology course, consult with the instructor and chair of the department offering the course. *Dr. O'Connell cannot override those caps.*

Helpful Links

Transfer credit from other state institutions:

To determine whether a course you wish to take at another state institution fulfills a requirement at TCNJ, simply visit <http://www.NJTransfer.org>.

Advising: <http://www.tcnj.edu/~advising/>

Liberal Learning: <http://www.tcnj.edu/~liberal/>