Biology Student Handbook
2015 - 2016

Department of Biology
School of Science

The College of New Jersey
Table of Contents

INTRODUCTION ........................................................................................................................................... 3
THE CURRICULUM IN BIOLOGY .................................................................................................................. 3
   Biology Core Courses ............................................................................................................................... 3
   Biology Options ......................................................................................................................................... 3
   Biology– Required Correlate Courses ....................................................................................................... 3
   Liberal Learning ......................................................................................................................................... 3
RESEARCH .................................................................................................................................................... 4
   Independent Research in Biology ............................................................................................................ 4
   Biology Research Internship (BIO 399) .................................................................................................... 4
   Departmental Honors............................................................................................................................... 4
ACADEMIC OPPORTUNITIES AND SERVICES ......................................................................................... 5
   Areas of Interdisciplinary Interest .......................................................................................................... 5
   Marine Science Consortium ..................................................................................................................... 5
   Study Abroad ........................................................................................................................................... 5
   Tutoring .................................................................................................................................................... 5
ADVISEMENT FOR FUTURE SCHOOLING AND CAREER SELECTION .................................................... 6
   Faculty Advisement ................................................................................................................................. 6
   Preparation to Teach Biology: Traditional Undergraduate Track (Biology 2 Ed Major) ....................... 6
   Graduate School Advisement ................................................................................................................. 6
   Medical Careers Advisory Committee: Pre-Medical and Allied Health Preparation ............................ 6
   Seven Year BS/OD Program in Optometry ............................................................................................. 7
   Scholarships and Fellowships ................................................................................................................ 7
   Career Advisement and Counseling ....................................................................................................... 7
DEPARTMENTAL ORGANIZATIONS .......................................................................................................... 8
   Biological Honor Society, Beta Beta Beta (“Tri-Beta”) ............................................................................. 8
   Graduate Studies Club ............................................................................................................................... 8
   Bio-Ed Club ............................................................................................................................................... 8
   American Medical Students Association (AMSA) ................................................................................... 8
   Minority Association of Pre-Health Students (MAPS) ........................................................................... 8
   AZ/BS-MD Club ...................................................................................................................................... 8
   Additional Organizations (Pre-Soma, Pre-Vet and Pre-Dental) .............................................................. 8
APPENDIX I: Roster of Faculty, 2015 – 2016 ............................................................................................. 9
APPENDIX II: Professional Education Unit Statement of Policy ............................................................. 13
APPENDIX III: Concerning Transfer Credit ............................................................................................ 13
APPENDIX IV: 400-Level Independent Research Guidelines .................................................................... 14
APPENDIX V: 300-Level Independent Research Guidelines .................................................................... 15
APPENDIX VI: Biology Policies ................................................................................................................ 16
APPENDIX VII: Building Abbreviations as Found on Your Schedule .................................................. 18
INTRODUCTION

This handbook is designed to help you gain the most from your experience at The College of New Jersey (TCNJ). It will acquaint you with procedures, policies, opportunities and services that exist at TCNJ and within the Biology Department. The Biology Handbook supplements, but does not replace The College of New Jersey Undergraduate Bulletin and the Biology Web Page.

The Curriculum in Biology

(please also refer to the Undergraduate Bulletin, and the Plan Summary Sheets)

Biology Core Courses

Biology Freshman Seminar (non-credit) – BIO 099   Themes in Biology - BIO 185
Biology of the Eukaryotic Cell - BIO 211   Ecology and Field Biology - BIO 221   Genetics - BIO 231
Biology Capstone: Research, BIO 495/496; or Biology Seminar, BIO 498

Biology Options

In addition to the Biology Core Courses, each biology student must complete a prescribed number of units of Biology option courses (300 and 400 level courses), at least one of which must meet the "organisms and evolution" requirement, which is fulfilled by a course that meets the following criteria:

- Primary focus is at organism level, centering on what it means to be an organism;
- The course emphasizes macro-evolutionary processes;
- The course emphasizes an organismal perspective, rather than a cellular, molecular, or biochemical one.

Each semester’s option courses can be found on the biology webpage and in the Biology Registration Newsletter. The number of option courses required for each program of study within Biology is detailed in the section “Biology Policies” (App VI, pg 16). Finally, one biology option can be met by pursuing Independent Research in Biology, (see next page), or a Biology Research Internship (BIO 399). Students may not receive both transfer Independent Research credit and BIO 399 credit for the same research experience.

Biology – Required Correlate Courses

CHE 201, 202   General Chemistry I and II
CHE 331, 332   Organic Chemistry I and II
PHY 201   General Physics I (note: many graduate programs require Physics II)
MAT 127   Calculus A; PLUS a second math course (MAT 128, MAT 200, or STA 215)

NOTE: Biology Secondary Education majors no longer are required to complete MAT 128, but they must complete a second quantitative course (MAT 128, MAT 200, or STA 215). Students who entered before Fall 2012 may elect to follow either set of requirements, but those selecting the new requirements need to request that the biology chair send an e-mail to R&R indicating such.

Liberal Learning courses

Biology majors must complete the college’s Liberal Learning Requirements as well as the Biology major requirements. Complete information can be found at the link above, but in general, Bio majors must take:

1. First-year Seminar Program (FSP) course
2. WRI 102 (if required) plus a second writing intensive course (Ecology and Field Biology) and a fourth year writing intensive course in the major (Biology Seminar, or BIO 495)
3. Second language, intermediate competency, met by starting a new language and completing through the third introductory second language course (103), or by continuing with a language through the 103 level based on placement testing
4. Information literacy requirement, which is met by showing proficiency through an on-line process
5. Civic responsibility requirements, which may be met by completing an approved course, program, or equivalent sustained experience
6. Broad Sectors of Human Inquiry requirements, which are met by one of several options described on the Liberal Learning home page.

Research
Independent research is highly recommended as a way to acquire a foundation in biology by engaging in original research under the direction of a faculty member. Opportunities include on-campus research with a faculty mentor (Independent Research), and off-campus research opportunities for academic internship credit (BIO 399, Biology Research Internship). A fall workshop hosted by the Bio Dept provides information on how to become involved.

Independent Research in Biology
a. Advisement: After reviewing the list of the research interests of the faculty, students should discuss sponsorship with the appropriate faculty member at least one semester prior to when he or she plans to register for independent research. Acceptance of the student by a faculty member (mentor) will be based on the availability of the mentor's time, resources and facilities.

b. Application and Proposal: An Independent Research Enrollment Form (also available from the Biology office) should be completed by the student, signed by the faculty mentor and submitted to the Biology Office before the end of the first week of classes. The student can register for one course unit of independent research or internship as a biology option credit.

c. Course Options: Research course options include the following:
   - BIO 393  Independent Research in Biology I
   - BIO 394  Honors Independent Research in Biology I
   - BIO 493  Independent Research in Biology II
   - BIO 494  Honors Independent Research in Biology II
   - BIO 495  Independent Research in Biology Capstone
   - BIO 496  Honors Independent Research in Biology Capstone

Biology Research Internship (BIO 399)
A number of local pharmaceutical and biotech companies, as well as universities and ecological field stations throughout the country, offer undergraduate summer research opportunities that qualify for academic internship credit. In most cases students must apply to and be accepted into these programs. An extensive list of opportunities is linked to the Biology home page. Students interested in obtaining academic credit for internship experiences should contact Internship Coordinator Dr. Erickson (x2673) before engaging in the research to discuss whether the experience will qualify for credit. The criteria for engaging in research can be found online in the Course Descriptions in the Undergraduate Bulletin.

Departmental Honors
Departmental Honors in Biology provides advanced research experience and recognition of outstanding achievement. To be eligible to graduate with Departmental Honors in Biology, the biology major must conduct a minimum of three semesters of research at TCNJ (BIO 393, 394, 493, 494, 495, or 496), write a thesis, and defend the thesis orally in front of a committee. To apply to graduate with Departmental Honors in Biology, the student must first meet with the Departmental Honors Advisor, then form a committee consisting of the faculty research advisor, another faculty member of the student’s choice, the Departmental Honors Advisor, and the Department Chairperson. To graduate with Departmental Honors in Biology, the student must complete the research and defend the thesis, have a minimum overall GPA of 3.3, a minimum science GPA of 3.5, and have completed at least 5 biology course units at The College of New Jersey. Additional information may be obtained from Dr. Morrison, Biology Departmental Honors Advisor.
**Academic Opportunities and Services**

**Areas of Interdisciplinary Interest for Biology Majors:**

Mathematics and Computer Science: Minors in Statistics or Computer Science offer the Biology major an opportunity to delve into the areas of mathematical modeling and bioinformatics.

Business: A minor in one of the departments in the School of Business can prepare students for careers in scientific administration, sales, personnel, marketing or management.

Art: An art minor can also be of value if the student has an interest in scientific illustration and advertising. Graphics and advertising art techniques combined with the biology major would be of value in pharmaceutical supply house sales, basic research publications, and grant development.

Public Health, and the Environment: The Department of Sociology and Anthropology offers a Public Health minor, as well as a Sociology major with a concentration in Health and Environmental Studies. The Liberal Learning program also offers interdisciplinary concentrations in Health Communication, and Environmental Studies. These areas may supplement the career options for the Biology major.

Journalism: The Department of English offers a minor in journalism that can provide training for Biology majors interested in science writing as a career option.

**Marine Science Consortium**

The College of New Jersey is a member of the New Jersey Marine Sciences Consortium. The Consortium offers courses at Sandy Hook in Monmouth County. This affiliation provides our students with an excellent opportunity to take a course in Marine Biology during the summer months for biology option credit. There are also courses in marine science and scuba diving, which can be taken as free electives. These can expand a liberal learning education and lead to a life-long avocation. For further information, contact Dr. Gary Dickinson, ext. 2456, or dickinga@tcnj.edu.

**Study Abroad**

Biology majors can greatly enrich their education by studying abroad for a full academic year, a semester, or a summer. The biology curriculum is flexible enough that graduation requirements can be met even if a student studies abroad; however it is wise to plan ahead and discuss this with your advisor as early in your college career as possible. Visit the Center for Global Engagement’s [website](http://www.tcnj.edu/center-for-global-engagement/) for more information. Students may also enroll in BIO 365/366, *The Natural History of the Galapagos Islands and Ecuador* (offered during the spring in odd-numbered years), which concludes with a 2-week short-term abroad experience.

**Tutoring**

*Obtaining the Services of a Tutor*

The transition from high school to college presents many new challenges to first-year students. Sometimes, the difficulty can be resolved by consulting the instructor, but other times the problem may need regular, on-going assistance provided by the Tutoring Center. Through a variety of programs, the Center’s administrators and peer tutors help students appraise areas of difficulty and develop appropriate learning strategies to master needed content and skills. These programs include:

- Supplemental instruction in selected courses
- Study Groups facilitated by tutors
- Single-session Writing Conferences at any stage of an assignment
- [Online Writing Lab](http://www.tcnj.edu/online-writing-lab/) (OWL) for internet writing resources and email assistance with specific writing questions
- Tutoring, by-appointment, for course content
- Drop-in tutoring for some math or science courses

The Tutoring Center is located in Roscoe West Hall, Suite 101 and is open Monday-Friday during the daytime and on selected evenings as posted early in the semester. Information about services and schedules is available on the [Tutoring Center](http://www.tcnj.edu/tutoring-center) web site.
b. Becoming a Tutor
If you enjoy sharing your knowledge of biology or any other area of study with others, consider becoming a tutor for the Tutoring Center. Working as a tutor carries several benefits. For further information, contact the Tutoring Center, Roscoe West Hall Suite 101, ext. 3325.

Advisement for Future Schooling and Career Selection

Faculty Advisement
PAWS provides the name and extension of your assigned academic advisor in Biology who will remain your advisor throughout your college experience at The College of New Jersey. Your advisor will help you to plan your academic future and career based on your aims and goals. He or she will help plan courses, solve many of your academic problems, guide you through procedures, make helpful referrals and attempt to personalize your academic endeavors.

Preparation to Teach Biology: Traditional Undergraduate Track (Biology 2° Ed Major)
The Biology Secondary Education major follows a program with a science/math component very similar to that of the Liberal Arts major. The professional education courses will require that you plan your four-year schedule carefully to avoid conflicts with science courses. Student Teaching is a full-time commitment occurring during the fall or spring semester of your senior year, at which time you should not take other courses in liberal studies, math or science. Permission to student-teach as a biology major must be obtained from the Biology Department’s Secondary Education Student Teacher Coordinator, Dr. Matthew Wund (wundm@tcnj.edu; x 2875) after meeting the requirements outlined in the undergraduate bulletin.

Graduate School Advisement
All faculty in the department can provide information and guidance to students interested in attending graduate school at both the Masters and Ph.D. levels, and Drs. Butler and Kress additionally serve as advisors for the department’s Graduate Studies Club (see pg 8). Students interested in graduate work should consult their advisor and join the club for advice on topics such as taking standardized tests (e.g., GREs), fulfilling requirements, and the like. However, since the application process for graduate studies varies from field to field, students should consult not only their advisor, but also any and all faculty in their specific area of interest (ecology, developmental biology, molecular biology, etc.). In addition, each fall the department hosts a session called “How to Get involved in Research” and in the spring faculty host an informational session on graduate school. It is critical that students interested in pursuing graduate work become involved in research while at TCNJ.

Medical Careers Advisory Committee: Pre-Medical and Allied Health preparation
The Medical Careers Advisory Committee provides information, guidance, assistance and recommendations to qualified students interested in health professional schools. Students are encouraged to visit (and READ!) the Medical Careers web site in addition to speaking with members of the committee for guidance in preparing for medical careers.

The Medical Careers Advisory Committee is comprised of Dr. Marcia O’Connell (moconnel@tcnj.edu), Chair, and Drs. Erickson, Kress, Nayak, Norvell and Shevlin in Biology, and Dr. Hunt in Chemistry, Dr. Hall in Engineering, and Dr. Leynes in Psychology. Staff assistance is provided by Ms. Helen Kull, Biology Department Program Assistant (hakull@tcnj.edu).
Keep in mind that your entry into a health professional school is dependent on a number of factors. These include *entry examination test scores* (DAT, MCAT, etc.), overall undergraduate *GPA*, extensive *hospital volunteer experience*, and strong *letters of recommendation*.

In preparation for application to Medical, Dental, Pharmacy, Veterinary, Physician Assistant, Podiatry, Optometry, Chiropractic, Physical Therapy, Occupational Therapy, Public Health, etc. programs, the student should consult as soon as possible with members of the Medical Careers Advisory Committee for current information and advisement. The student should also consult individual professional school catalogs and web pages to learn the entrance requirements as well as the specialties of the professional programs.

**Seven Year BS/OD (Optometry) Program**
This accelerated program works in conjunction with The New York State College of Optometry (SUNY) in Manhattan and is available to entering first-year students and to enrolled biology first-year students and first-semester sophomores. Freshman biology students may apply to the BS/OD program provided they have a minimum 3.3 overall GPA, and at least a 3.3 GPA in the math and science prerequisites for the major. Admission is decided on an individual basis by officials at both TCNJ and SUNY. BS/OD majors must maintain an overall GPA of 3.3 or higher in all required science and math courses, with no grade in the required courses below a C. Students are required to take the Optometry Aptitude Test (OAT) and achieve a 320 or better on all sections. More specific information on the program is available from the [Optometry Program](#) web page; or Optometry Program Director [Dr. Sudhir Nayak](#), (x2659).

**Scholarships and Fellowships**
Students can obtain financial support for their undergraduate, graduate, or professional school studies through a variety of scholarships and fellowships. Some awards also provide opportunities for research, or clinical experience. See the departmental [scholarship and fellowship](#) web page.

**Career Advisement and Counseling**
The [Office of Career Services](#) provides a variety of programs and resources to assist students planning for graduate and professional school, such as:

1. Assistance in identifying career options
2. Resume writing and interviewing skill development
3. Small group workshops on topics including "Interview Skills", "Effective Resume and Cover Letter Writing", "Job Search Strategies" and "Internship Opportunities" throughout the academic year
4. Graduate School advisement and related testing information (e.g. GRE, GMAT, LSAT, MCAT)
5. Meetings with counselors to discuss your plans

In addition, the Biology [Opportunities](#) page has links to some job listings.

Some career counseling services are also provided, in coordination with Career Services, by the [Counseling and Psychological Services (CAPS) Office](#), located in Eickhoff Hall, Room 107. The CAPS staff also provides a variety of counseling options, including individual and group counseling, with the opportunity to address personal and emotional problems that may interfere with your academic work. All services are free and confidential.
**Departmental Organizations**

**Biological Honor Society, Beta Beta Beta (Tri-Beta)**
AdVISOR: Dr. KT Elliott, x2875, elliottk@tcnj.edu
"Tri Beta" is the casual name of the national biology honor society, and our chapter functions both as an honor society and a service organization for students in the biological sciences. Its main objectives are to promote scholarship in the biological sciences, promote dissemination of biological knowledge, facilitate faculty/student interaction, and encourage research. All activities hosted by Tri-Beta are open to all majors, and include trips, picnics and parties. Tri-Beta also hosts the annual "Meet the Professors" event.

**Graduate Studies Club (GradS)**
Advisors: Dr. Tracy Kress (x2462, kress@tcnj.edu) and Dr. Luke Butler (x2531, lbutler@tcnj.edu)
The Graduate Studies (GradS) Club is comprised of students interested in or considering graduate study. Meetings address such issues as choosing between research and non-research-based programs, finding a graduate school, navigating the application and interview process, preparing for the GREs (standardized test), and choosing a mentor.

**BioEd Club**
AdVISOR: Dr. Matthew Wund (x2875, wundm@tcnj.edu)
This group works to support any biology student with interests in teaching. They hold monthly meetings to discuss the teacher prep program, teaching techniques specific to biology, and opportunities specific to future teachers.

**American Medical Students Association (AMSA)**
AdVISOR: Dr. Dennis Shevlin, x2246, shevlin@tcnj.edu
AMSA provides information to pre-medical students about preparation for and the nature of allopathic medical training, including a national data base and a set of contacts for pre-medical students. Our local chapter sponsors premedical advisement workshops, admissions seminars, financial aid presentations, and lectures by physicians in training and practice, and visits to local medical schools.

**Minority Association of Pre-Health Students (MAPS)**
AdVISOR: Dr. Amanda Norvell, x3439, norvell@tcnj.edu
TCNJ’s chapter of MAPS (also a national organization) provides under-represented students interested in the medical field with adequate knowledge, skills, and experiences that are both prerequisite and affiliated with the requirements necessary for admission into medical schools, with particular attention paid to issues relating to students from under-represented groups. The organization offers to its members the following activities: panels of medical students and doctors, access to regional and/or national conferences, medical school trips, mentorship through medical students, shadowing with doctors, facilitating access to community service etc.

**AZ/BS-MD Club**
AdVISOR: Dr. Dennis Shevlin, x2246, shevlin@tcnj.edu
AZ (formerly “Alpha Zeta,” but not a Greek organization) is a student organization consisting of the participants in the Seven-Year Articulation Program with UMDNJ-New Jersey Medical School. It is designed to help with the transition to medical school, and provides support, information and networking opportunities for its members.

**Additional Organizations**
Information and advisement for students interested in dentistry, optometry, and other health fields are offered by the Medical Careers Advisory Committee faculty, and these other student groups:

- **Pre-SOMA Club** – information and education about osteopathic medical schools
  Advisor: Dr. Sudhir Nayak, x2659; http://www.tcnjpre-soma.weebly.com

- **Pre-Dental Club** – information and education about dental schools
  Advisor: Dr. Jeffery Erickson, x2673; contact dental@tcnj.edu

- **Pre-Vet Club** – information and education about veterinary schools and study
  Advisor: Dr. Matt Wund, x2879; contact tcnjprevet@gmail.com
# Appendix I
## Roster of Faculty, 2015 – 2016

### James Bricker  
**bricker@tcnj.edu**  
Office, BIO 116, x2457  
Lab, BIO 112 x2676  

*Assistant Professor; earned Ph.D. at S.U.N.Y. at Buffalo*

**Teaching responsibilities:** Laboratory Techniques in Biotechnology, Microbiology, Advances of Molecular Biology, and Biology Seminar

**Research Interests and Academic Services:**
1. Isolating DNA from shed snake skins to develop a genetic and molecular picture of the corn snake (*Elaphe gutata*) population
2. Tracing the molecular genetic history of white tailed deer in the New Jersey area
3. Using the above data to manage the corn snake, an endangered species
4. Obtaining and analyzing DNA from museum specimens for use in research
5. Advisor for the TCNJ Fencing Club

### Luke K. Butler  
**lbutler@tcnj.edu**  
Office, BIO 240, x2531  
Lab, BIO 250, x2898  

*Associate Professor; earned Ph.D. at University of Washington*

**Teaching responsibilities:** Themes in Biology, Avian Biology, Animal Behavior

**Research Interests and Academic Services:**
1. Causes and consequences of variation in the molt dynamics of birds
2. Adaptations and life-history trade-offs in the structure of body feathers
3. Physiological and behavioral responses to stress in vertebrates
4. Advisor for GradS, the Graduate Studies Club

### Wendy Clement  
**clementw@tcnj.edu**  
Office, BIO 117, x2672  
Lab, BIO 236, x3074  

*Assistant Professor; earned Ph.D. at University of Minnesota, Twin Cities*

**Teaching responsibilities:** Themes in Biology, Ecology and Evolution of Plant-Insect Interactions, Systematic Biology, and Biology Seminar

**Research Interests and Academic Services:**
1. Plant systematics and evolution
2. Pollination biology
3. Biogeography

### Gary H. Dickinson  
**dickinga@tcnj.edu**  
Office, BIO 239, x2456  
Lab, BIO 253, x2023  

*Assistant Professor; earned Ph.D. at Duke University*

**Teaching responsibilities:** Themes in Biology, Animal Physiology, Biological Materials

**Research Interests and Academic Services:**
1. Physiological ecology of marine invertebrates
2. Adhesion, biomineralization, and larval behavior of barnacles
3. Biological responses to ocean acidification and climate change
4. Marine biofouling and its prevention

### Curt Elderkin  
**elderkin@tcnj.edu**  
Office, BIO 241, x2819  
Lab, BIO 249, x2874  

*Associate Professor; earned Ph.D. at University of Louisiana, Lafayette*

**Teaching responsibilities:** Themes in Biology, Ecology and Field Biology, and Evolution

**Research Interests and Academic Services:**
1. Population genetics and biogeography of freshwater invertebrates
2. Ecology and conservation of freshwater mussels
3. Evolutionary ecology of freshwater invertebrates
4. Invasive species ecology
Kathryn Elliott elliottk@tcnj.edu Office, BIO 128, x2671 Lab, BIO 235, x2415

Assistant Professor; earned Ph.D. at University of Michigan

Teaching responsibilities: Genetics, Bacterial Pathogenesis, Bacterial Genetics, and Biology Seminar

Research interests and Academic Services:
1. Genetics and biochemistry of genetic recombination
2. Nature and frequency of gene duplication and amplification;
3. Evolution and adaptation of gene amplification mutants; and
4. Beta Beta Beta (Biology Honor society) Advisor
5. Delta Epsilon Psi (South Asian Fraternity) Advisor

Jeffery T. Erickson erickson@tcnj.edu Office, BIO 238, x2673 Lab, BIO 251, x3380

Associate Professor; earned Ph.D. at University of North Carolina at Chapel Hill

Teaching responsibilities: Biology of the Eukaryotic Cell and Neurobiology

Research Interests and Academic Services:
1. Developmental respiratory neurobiology
2. Growth factors and sensory neuron development
3. Genetic determinants of vertebrate breathing behavior
4. Pre-Dental Club advisor
5. Coordinator, Biology Research Internships

Tracy Kress kress@tcnj.edu Office, BIO 229, x2462 Lab, BIO 221, x3335

Assistant Professor; earned Ph.D. at Brown University

Teaching responsibilities: Themes in Biology, Biology of the Eukaryotic Cell, Molecular Biology of Gene Expression, and Biology Seminar

Research Interests and Academic Services:
1. Regulation of gene expression in the yeast Saccharomyces cerevisiae
2. Mechanisms and regulation of RNA processing
3. Coordination of RNA splicing with chromatin remodeling and transcription
4. Advisor for GradS, the Graduate Studies Club

Donald Lovett lovett@tcnj.edu Office, BIO 129, x2876 Lab, BIO 134, x2675

Professor; earned Ph.D. at University of Louisiana, Lafayette

Teaching responsibilities: Biology Freshman Seminar, Themes in Biology, Microscopic Anatomy and Techniques, Natural History of the Galapagos Islands, and The Evolutionary Controversy (FSP)

Research Interests and Academic Services:
1. Anatomy and ultrastructure of the crustacean gill
2. Mechanisms of osmoregulatory response in the blue crab
3. Gene expression in crabs
4. Supporting at-risk students in the sciences
5. Co-Director of PERSIST Scholars Program

Janet Morrison morrisja@tcnj.edu Office, BIO 203, x3091 Lab, BIO 219, x3362

Professor; earned Ph.D. at S.U.N.Y. at Stony Brook

Teaching responsibilities: Biology Freshman Seminar, Ecology and Field Biology, Biology of Seed Plants, and Plants and People

Research Interests and Academic Services:
1. Ecology and evolution of plant-pathogen interactions in natural communities
2. Ecological mechanisms and community effects of non-native plant invasions & overabundant deer.
3. Ecology, conservation, and biodiversity of urban/suburban forests
4. Botanical evolutionary ecology
5. Experimental approaches in field ecology
6. Factors affecting participation in mentored undergraduate research experiences
7. Director of Gateway to Graduate School
8. Departmental Chair
**Sudhir Nayak**  
nayak@tcnj.edu  
Office, BIO 126, x2659  
Lab, BIO 243, x3436

Associate Professor; earned Ph.D. at University of Pennsylvania  

**Teaching responsibilities:** Biology Freshman Seminar, Genetics, Genomics and Bioinformatics, and Senior Biology Seminar  

**Research Interests and Academic Services:**  
1. Genetics analysis of cell fate specification and execution in the nematode (*Caenorhabditis elegans*)  
2. Post-translational control of proteins involved in nematode oogenesis  
3. Software development for sequence analysis  
4. Director of Seven-year Baccalaureate/Optometry Degree (BS/OD) program

---

**Amanda Norvell**  
norvell@tcnj.edu  
Office, BIO 131, x3439  
Lab, BIO 143, x3275

Associate Professor; earned Ph.D. at University of Pennsylvania  

**Teaching responsibilities:** Themes in Biology, Biology of the Eukaryotic Cell, Molecular Immunology and Human Disease, Advanced Eukaryotic Cell Biology, Biology Seminar  

**Research Interests and Academic Services:**  
1. Pattern formation during *Drosophila melanogaster* oogenesis  
2. mRNA localization during oogenesis  
3. Transcription and nuclear export of mRNA  
4. Faculty Senate President  
5. Advisor to MAPS

---

**Marcia O’Connell**  
moconnel@tcnj.edu  
Office, BIO 228, x2879  
Lab, BIO 248, x3446

Professor; earned Ph.D. at S.U.N.Y. at Stony Brook  

**Teaching responsibilities:** Biology of the Eukaryotic Cell, Genetics, Developmental Biology, and Biology Seminar  

**Research Interests and Academic Services:**  
1. Determination and formation of the embryonic axes in vertebrates  
2. Regulation of tissue specific genes in zebra fish embryos  
3. Maternal regulation of polyadenylation  
4. Chair of Medical Careers Advisory Committee  
5. Faculty Representative to the College Board of Trustees

---

**Keith Pecor**  
pecor@tcnj.edu  
Office, BIO 127, x2460  
Lab, BIO 111, x3020

Associate Professor; earned Ph.D. at University of Michigan  

**Teaching responsibilities:** Orientation to Biology, Ecology and Field Biology, Biology of the Invertebrates, and Freshwater Ecology.  

**Research Interests and Academic Services:**  
1. Ecology and natural history of freshwater invertebrates  
2. Invasive species ecology  
3. Academic Integrity Officer for the School of Science  
4. Chief Academic Integrity Office for the College

---

**Nina Peel**  
peeln@tcnj.edu  
Office, BIO 118, x3128  
Lab, BIO 243, x3436

Assistant Professor; earned Ph.D. at University of Cambridge, UK  

**Teaching responsibilities:** Biology of the Eukaryotic Cell, Genetics, Genetics of Cancer, and Biology Seminar  

**Research Interests and Academic Services:**  
1. How centrosome duplication is controlled;  
2. The functions of protein phosphatase 1 (PP1) in early development; and  
3. How microtubule dynamics are regulated by post-translational modifications, using *C. elegans*
Howard Reinert  
rehreinert@tcnj.edu  
Office, BIO 226, x2474  
Lab, BIO 114, x2154

Professor; earned Ph.D. at Lehigh University

Teaching responsibilities: Ecology and Field Biology, Biostatistics, and Physiological & Behavior Ecology

Research Interests and Academic Services:
1. Ecology, behavior and physiology of reptiles and amphibians
2. Habitat selection in snakes
3. Predator/prey relationships and the foraging behavior of vertebrates
4. Conservation and management of endangered animal species
5. Application of molecular biological techniques to ecology and conservation biology

Dennis Shevlin  
shevlin@tcnj.edu  
Office, BIO 130, x2246  
Lab, BIO 109, x2246

Associate Professor; earned Ph.D. at University of California at Berkeley

Teaching responsibilities: Themes in Biology, Biology of the Eukaryotic Cell, Oceanography, Biology of Fungi, and Biology Seminar

Research Interests and Academic Services:
1. The biology of Ustilaginalean Fungi – population biology using molecular markers, developmental biology, and plant host/parasite interactions
2. Director of the Seven-year Baccalaureate/Medical Degree (BS/MD) Program
3. Advisor to A-Z and to the 7-Yr BS/MD students
4. Advisor to AMSA

Leeann Thornton  
thornton@tcnj.edu  
Office, BIO 119, x2875  
Lab, BIO 220, x3065

Associate Professor; earned Ph.D. at Washington University in St. Louis

Teaching responsibilities: Themes in Biology, Biology of Seed Plants, Plant Genetics, Biology Seminar

Research Interests and Academic Services:
1. Plant stress responses
2. Relationship between structure and function in metabolic proteins
3. Molecular genetics of multi-gene protein families
4. ON SABBATICAL for 2015-2016 academic year

Anthony Uzwiak  
uzwiak@tcnj.edu  
Office, BIO 120, x2044

Assistant Professor; earned Ph.D. at Rutgers University

Teaching responsibilities: Principles of Human Anatomy and Physiology I and II; Endocrinology

Research Interests and Academic Services:

Matthew Wund  
wundm@tcnj.edu  
Office, BIO 121, x2897  
Lab, BIO 110, x2936

Associate Professor; earned Ph.D. at University of Michigan

Teaching responsibilities: Ecology and Field Biology, Inquiries into the Life Sciences, Biology of the Vertebrates, and Biology Seminar

Research Interests and Academic Services:
1. The interplay between individual plasticity and evolutionary processes
2. The evolution of animal behavior
3. The evolution of adaptive radiations

David Wynne  
wynned@tcnj.edu  
Office, BIO 119, x3316  
Lab, BIO 243, x3436

Teacher-Scholar Fellow; earned Ph.D. at University of California at Berkeley

Teaching Responsibilities: Themes in Biology; Biology Senior Seminar

Research Interests:
1. Chromosome biology – meiosis and mitosis
Appendix II

The College of New Jersey’s

Professional Education Unit Statement of Policy
for Undergraduate Exit Requirements in Teacher Education Programs

As a result of New Jersey State Department of Education code revisions (Section 6.11-5.1), a cumulative grade point average (GPA) of at least 3.0 (or ≥ 2.75 with a Praxis 2 exam score >10% above minimum passing score and an appeal to the State) is required for students to successfully complete their teacher education program and be recommended for certification and licensure.

To help assure that students at The College of New Jersey meet this graduation requirement:

1. Admission to candidacy in all teacher education programs will require a 2.75 minimum GPA following completion of 60 credits, and
2. Admission to student teaching in all teacher education programs will require a 2.75 minimum GPA.

Exceptions involving admissions will be considered on an individual basis, and granted upon approval of the Chair of the Department offering the program and the Dean of Education.

~ Adopted on Feb 16, 2000, by the Teacher Education Advisory Council, and amended in 2014.

Appendix III

Concerning Transfer Credit

On-line/Distance Learning Courses:
Transfer credit will NOT be given for any laboratory course which is taught on-line, even if njtransfer.org may indicate that a course with that number qualifies for transfer credit.

Courses not listed on njtransfer.org:
For a course to count as a biology option, it must, at a minimum, require the biology major introductory course as its prerequisite, and be eligible for biology major credit at the home institution. In addition, for the course to be approved for credit at TCNJ, students must provide documentation of the formal course description, the course’s prerequisites, the number of meetings, whether the course has a lab, and the nature of the lab. Documentation may be provided to the Biology Department Chair as print-outs of the institution’s information, or electronically in pdf form, or as the URL where the information can be found.

Approvals:
Students should gain approval for transfer credit prior to taking the course, unless it appears on njtransfer.org.
Appendix IV

Guidelines for 400-level Biology Independent Research

Basic Requirements:
1) Attendance at laboratory meetings
2) Maintenance of a laboratory notebook
3) Attendance at all departmental seminars
4) Engagement in an average of 15 hours per week of work related to the project
5) Presentation of a research poster to the department
6) Submission of a final research paper written in a style suitable for a scientific journal and the final version archived with the department for review

Performance Rubric

Students will be given a grade of IP until the project is completed. For the final grade, a plus or a minus may be given based upon the level of accomplishment within a grade level. A student that fails to meet the basic requirements and/or does not produce a research paper or poster will not pass.

A Excellent Performance
• Engages in persistent, hard work
• Displays independent intellectual and technical involvement in work
• Has an excellent grasp of technical and theoretical aspects of research
• Makes project his or her own; makes creative contribution to design and analysis of experiments
• Maintains an excellent lab notebook with up-to-date recording, tabulating, and analysis of data
• Displays critical thinking in lab meetings
• Final poster presentation and written research paper are of excellent to outstanding quality

B Good performance
• Engages in persistent, hard work
• Exhibits ability to work independently and demonstrates technical independence
• Delivers a very solid performance and completely reliable and reproducible experimental work
• Gives competent presentations in lab meetings
• Maintains a clear, organized lab notebook
• Final poster presentation and written research paper are of good to very good quality

C Average performance
• Engages in persistent, hard work
• Performance in experimental work is fair to poor
• Demonstrates an ability to work with limited supervision
• Lab notebook is inadequately maintained
• Participation in lab and lab meetings is of low quality
• Final poster presentation and written research paper are of fair quality

D Poor performance
• Performance is inadequate or sloppy
• Displays inability to work without direct supervision
• Has an inadequate grasp of the technical aspects of the work
• Does not maintain an organized research notebook
• Poster and paper are unclear and poorly organized and presented
Appendix V

Guidelines for 300-level Biology Independent Research

Course requirements

1. Work load commensurate with credit hours; for a 0.5 course units (2 semester hours) course a student is expected to engage in an average of 7.5 hours of research activity per week and for a course unit 15 hours of work per week is expected
2. Maintenance of a laboratory notebook
3. Attendance at laboratory meetings
4. Attendance at Departmental Seminars and Poster Sessions

Students who complete a half course unit of either Bio 393/394 are expected to turn in their lab notebook for final evaluation. Students who complete 1 or more course units in Bio 393/394 must submit an appropriate culminating project. The details of this culminating project are at the discretion of the research mentor. Examples might include a literature review, production of a final figure appropriate for presentation or publication, or a poster presentation. A student that fails to meet the basic requirements and/or does not produce a research paper or poster will not pass. If the project involves more than one student working together, then each student is responsible for understanding the project completely.

A. Excellent Performance
   • engages in persistent, hard work
   • exhibits ability to work independently and demonstrates technical independence
   • shows strong interest in theoretical aspects of research
   • maintains an excellent lab notebook with up-to-date recording, tabulating, and analysis of data
   • gives competent presentations in lab meetings
   • final culminating project is of excellent to outstanding quality

B. Good Performance
   • engages in persistent, hard work
   • exhibits technical competence and follows instruction well
   • demonstrates reliability and produces reproducible experimental work
   • maintains a clear, organized lab notebook with evidence that the experiments are understood
   • shows interest in lab meetings and participates in the research conversation
   • final culminating project is of good to very good quality

C. Average performance
   • engages in persistent, hard work
   • performance in experimental work is fair to poor
   • demonstrates an ability to work with limited supervision
   • lab notebook displays evidence of confusion and is inadequately maintained
   • participation in lab and lab meetings is of low quality
   • final culminating project is of fair quality

D. Poor Performance
   • performance is inadequate or sloppy
   • displays inability to work without direct supervision
   • has an inadequate grasp of the technical aspects of the work
   • does not maintain an organized research notebook
   • final culminating project is unclear and poorly organized or presented
Appendix VI

Biology Policies

Biology Core-related Pre-requisites:
- A student must have earned at least a C- in BIO 185 Themes in Biology in order to enroll in any BIO course numbered 200 or above.

- Completion of (or exemption from) MAT 096 and WRI 102 is a prerequisite for enrollment in BIO 221 Ecology and Field Biology.

- Completion of BIO 211 Eukaryotic Cell Biology is a prerequisite for enrollment in BIO 231 Genetics.

- Completion of at least two 200-level core courses (i.e., BIO 211, BIO 221, and BIO 231) is a prerequisite for enrollment in any 400-level biology course. A student may be co-enrolled in the third 200-level course while taking a 400-level course.

- BIO 498 Biology Seminar is a full course unit (4 semester hours) and is a writing-intensive (W) course designed to meet the TCNJ Liberal Learning requirements. Students are required to complete all 200-level core courses (i.e., BIO 211, BIO 221, and BIO 231) before they can enroll in BIO 498. The core courses cannot be taken as co-requisites in the same semester as BIO 498. Students planning on studying abroad during their final year at TCNJ should take note of this requirement.

- BIO 399 Biology Research Internship may be taken for credit only once for any particular research experience. Students may not receive both transfer research credit and BIO 399 credit for the same research experience.

Independent Research Pre-requisites:
- BIO 393 Independent Research in Biology I
  - Prerequisites: C- or better in BIO 185; an overall GPA of 2.5 or higher

- BIO 394 Honors Independent Research in Biology I
  - Prerequisites: C- or better in BIO 185; an overall GPA of 2.5 or higher

- BIO 495 Independent Research in Biology Capstone
  - Prerequisites: an overall GPA of 2.5 or higher; completion of at least one course unit of BIO 493/494 under the same instructor; may substitute for BIO 498 Biological Seminar as the capstone course and an in-major writing intensive (W) course; it may not be used to count as a biology option course.

- BIO 496 Honors Independent Research in Biology Capstone
  - Prerequisites: an overall GPA of 2.5 or higher; completion of at least one course unit of BIO 493/494 under the same instructor; may substitute for BIO 498 Biological Seminar as the capstone course and an in-major writing intensive (W) course; it may not be used to count as a biology option course.

Biology Options Courses:
- Biology Secondary Education majors no longer are required to complete PHY 202, but they must now complete an additional biology option course (for a total of 4 option courses, including one organisms and evolution). Students who entered before Fall 2012 may follow either set of requirements, but those selecting the new requirements must ask the biology chair send an e-mail to R&R indicating such.
For all biology majors, no more than half of the required biology option courses (including the organisms and evolution biology option course) may be transfer credits. All additional transfer credits can be applied as general electives toward the overall graduation requirement.

- For Biology Liberal Arts majors: Five option courses are required, of which one must be in organisms and evolution biology, no more than 2 option courses may be transfer credits from another institution, but one of the two can be the organisms and evolution biology option course.
- For Biology Secondary Education majors: Four biology option courses, of which one must be in organisms and evolution biology, and no more than two may be transfer credits from another institution.
- For 7-Year Medical Biology majors: Two 300- or 400-level biology option courses, one of which must have a lab, and no more than one may be transfer credit from another institution.
- For 7-Year Optometry majors: All required biology option courses must be taken at TCNJ.
- For students pursuing a Biology minor: Two biology option courses, of which no more than one may be transfer credit from another institution.

Only one course unit (in aggregate) of research courses (BIO 393, 394, 399, 493, 494, 495, or 496) can count as a biology option course. All additional credits in these courses can be applied as general electives toward the overall graduation requirement, with the exception of BIO 495 or 496, which can be used to substitute for BIO 498 as the capstone course.

Graduation and Retention Requirements

- For students who enter the major starting in Fall 2012, the graduation requirement of a minimum GPA of 1.67 in the core will include only the following courses in this calculation: BIO 185, BIO 211, BIO 221, and BIO 231. In addition, other students who elect to use BIO 495 or 496 as the capstone may not include the grade in this course in the calculation.

- Retention in the program is based on the following performance standards:
  - For all biology majors: at the end of the fourth semester at the college, students must have a minimum cumulative GPA of 2.0 in all math and science courses (excluding any biology courses numbered below 185), and must have completed at least three science courses required by the major.
  - For Biology Secondary Education majors: students must earn at least a cumulative grade point average (CGPA) of 2.75 or higher before enrolling in the junior year education sequence. To be allowed to student teach (BIO 490), the student must establish a minimum CGPA of 2.75 or higher, and must have completed the biology core in order to be allowed to student teach (BIO 490). Candidates for a teacher-education certificate must have a CGPA of 2.75 or higher to successfully complete their teacher education program.
  - For 7-Year Medical Biology majors: the student must maintain an overall and semester GPA of 3.5 or higher and earn a B or better in the required science courses (BIO 185, 231; CHE 201, 202, 331, 332; PHY 201, 202).
  - For 7-Year Optometry majors: students must maintain an overall GPA of 3.3 or higher and a GPA of 3.3 or higher in all required science and mathematics courses, with no grade in the required courses below a C.
  - For Biology minors: the student must have a minimum cumulative GPA of 2.0 in all math and science courses (excluding any biology courses numbered below 185), and must have completed at least three science courses required by the major at TCNJ.

- Graduation with any major in biology or a biology minor requires an overall GPA of 2.0 in courses for the program, and a cumulative GPA of 2.0 in all math and science courses taken at TCNJ, and a 1.67 in the core (BIO 185, BIO 211, BIO 221, and BIO 231).
Appendix VII

Campus Building Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>ARMS</td>
<td>Armstrong</td>
</tr>
<tr>
<td>AIMM</td>
<td>Art and Interactive Multi Media Bldg</td>
</tr>
<tr>
<td>ATHL</td>
<td>Athletic Recreation Center</td>
</tr>
<tr>
<td>BUSI</td>
<td>Business Building</td>
</tr>
<tr>
<td>BIOL</td>
<td>Biology Building</td>
</tr>
<tr>
<td>BLIS</td>
<td>Bliss Hall</td>
</tr>
<tr>
<td>BROW</td>
<td>Brower Student Center</td>
</tr>
<tr>
<td>FORC</td>
<td>Forcina Hall</td>
</tr>
<tr>
<td>HOLM</td>
<td>Holman Hall</td>
</tr>
<tr>
<td>KEND</td>
<td>Kendall Hall</td>
</tr>
<tr>
<td>LOSE</td>
<td>Paul Loser Hall</td>
</tr>
<tr>
<td>MUSI</td>
<td>Music Building</td>
</tr>
<tr>
<td>PACK</td>
<td>Packer Hall</td>
</tr>
<tr>
<td>SOCI</td>
<td>Social Sciences Building</td>
</tr>
<tr>
<td>SCIE</td>
<td>Science Complex</td>
</tr>
<tr>
<td>SCIE-P</td>
<td>Science Complex - Physics</td>
</tr>
<tr>
<td>SCIE-C</td>
<td>Science Complex - Chemistry</td>
</tr>
<tr>
<td>TRAV</td>
<td>Travers Hall</td>
</tr>
<tr>
<td>WLIB</td>
<td>Roscoe West Library</td>
</tr>
<tr>
<td>WOLF</td>
<td>Wolfe Hall</td>
</tr>
</tbody>
</table>