

# **THE DEANERY**

**ALBION COLLEGE  
ACADEMIC NEWSLETTER**

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**ANNOUNCEMENTS FOR THE NEXT DEANERY ARE DUE FEBRUARY 7, 2014.**

## **I. ANNOUNCEMENTS FROM COMMITTEES**

### **Curriculum & Resources Committee:**

Curriculum & Resources Committee approved the following changes in the International Baccalaureate policy (<http://www.albion.edu/academics/registrar/international-baccalaureate>):

**International Baccalaureate** – the College recognizes the strength and rigor of the International Baccalaureate Program. Students will receive one unit (four semester hours) of credit for *IB courses/tests taken at the highest level with a score of 5 or more. Scores of 4 will be evaluated on a case by case basis. Normally, no more than four units (16 hours) of credit from this program will be awarded to an individual. Students must petition a department or the faculty Petitions Committee for exceptions to these limits.*

**Guest Students** – *To be admitted as a guest student at Albion College, students must complete the Michigan Undergraduate Guest Application. Albion College accepts a number of guest students. All guest students must be in good academic standing at their home institutions. Guest students assume responsibility for determining whether the course(s) they take at Albion will apply to their program of study.*

**Maximum Credit Available Through Examination** – No more than eight units of credit can be obtained through any combination of locally designed departmental examinations and the College-Level Examination Program. No more than 12 units of credit can be obtained through any combination of the Advanced Placement Examination, *International Baccalaureate Program*, locally designed departmental examinations, and the College-Level Examination Program.

**Immediate Sophomore Standing** – An entering student who presents six or more units obtained through the Advanced Placement Examination, *International Baccalaureate Program*, locally designed departmental examinations, and/or the College-Level Examination Program will obtain immediate sophomore standing.

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Curriculum & Resources Committee approved the following changes to the Catalog description for Individually Designed Interdepartmental Majors:

## **Individually Designed Interdepartmental Major (IDIM)**

A student desiring to propose an Individually Designed Interdepartmental Major has usually determined that certain combinations of courses from a variety of departments on the Albion campus will best fulfil his/her career goals. In many instances, that student's career training will primarily focus on the offerings of one department, or one faculty member, who is most knowledgeable in that career area.

1. The student should propose his/her ideas to a faculty member in the appropriate department for discussion and clarification. The faculty member should be willing to serve as the Major Advisor.
2. *IDIM proposals must be submitted before the student attains 25 units.*
3. The student and the Major Advisor should work together in selecting other faculty members that might be included on the student's major committee. The student should then take the initiative in enlisting two of these faculty members to serve, with the Major Advisor, on the major committee. At least one member of the major committee shall be from outside the Major Advisor's department. If, for any reason, the membership of the major committee is altered, the student is responsible for securing replacements as well as for notifying the Provost and the Registrar of the change.
4. The major committee and the student shall then design in detail the nature of the curriculum to be followed for the IDIM. Individually Designed Interdepartmental Majors **MUST** include: a minimum of 8 units of course work **AND** one unit of directed study whose purpose shall be to demonstrate the student's ability to perform independent scholarship or creative activity appropriate to the student's particular program. Typically, the student's Major Advisor will supervise the directed study. IDIM programs must be a minimum of 9 units, including the directed study, and may not exceed 12 units.
5. *A student may not have completed more than half of the IDIM program prior to submission of the IDIM proposal.*
6. Before beginning the individualized program of study, the student must secure the unanimous approval of the major committee. The student should then submit the form to *the Registrar's Office*. The Registrar's Office will then send the form to the Provost for approval. **The student should include a proposal of the Directed Study which should show the role of the Directed Study in supporting the unique aspect of the IDIM and should be signed by the faculty member who will direct the proposed study.** The Provost will provide copies of the IDIM to the student, the Major Advisor and the Registrar. A copy of the approved program and any subsequent approved changes will be kept on file with the Registrar.
7. To revise an IDIM, the student must submit a new IDIM application with the changes in the program noted to the Registrar's Office. All of the changes to the IDIM must be

approved by the entire major committee and the Provost. The student must also file an explanation for the change in the original IDIM.

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Curriculum & Resources Committee approved the following changes to the Catalog for the Dual Degree Program in Engineering:

## **SECTION V**

**Catalog copy:** Please provide your existing catalog copy for majors and minors in your department, with changes that make clear appropriate new copy for the proposed major or minor and showing what may be deleted (if an existing program/course will be eliminated).

*Delete all language in Department of Physics section of Catalog except a reference to the “new” location. Add a reference to this “new” location to the catalog language for the departments of biology, chemistry, economics & management, geology, and mathematics & computer science.*

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## **Dual Degree Program in Engineering**

### **Introduction**

The dual degree program in engineering (DDPE) gives the student the best of two worlds - liberal arts and engineering. In today's world, engineers must be well-grounded in basic science and mathematics, have a broad range of knowledge as well as the skills to acquire new information, and think critically and communicate effectively. Engineering is a dynamic profession that is constantly striving to stay on the frontier of technological development. To adapt to this need for change, engineers must be able to educate themselves and learn new techniques to stay abreast of their field. They must also demonstrate exemplary professionalism, the ability to work in interdisciplinary and collaborative environments, be alert to the implications of their work, and be concerned about the effects of science and technology upon the larger world. Mindful of these goals, the dual- degree engineering program at Albion College endeavors to prepare students well to succeed in this dynamic and challenging profession.

Under the dual-degree program, a student spends three or more years at Albion and receives a strong background in the basic sciences and mathematics that underlie all engineering while gaining this knowledge in the context of the liberal arts tradition. Upon admission and transfer to an approved engineering school (listed below), the student then completes his/her engineering education. This typically takes an additional 2.0 to 2.5 years, depending upon the number of advanced courses the student has taken at Albion and on the engineering discipline. After successful completion of eight units at the engineering school that have been approved for back-transfer by the Engineering Advisory Committee (EAC), the student is then eligible to receive a B.A. degree from Albion. The student also receives a B.S. degree in engineering from the transfer institution upon successful completion of the relevant program's graduation requirements.

## **Career Opportunities**

The dual degree program in engineering provides students foundational skills in science, mathematics and computer science, as well as substantial experience in applying these skills to solving contemporary problems. Application examples include the design and realization of water purification systems, automotive/aerospace/marine vehicles, computer circuits/hardware, supply chain networks, and power grids, to name only a few. As such, DDPE graduates have substantial professional opportunities in both the public and private sector, ranging from design engineer to project manager to entrepreneur. Graduates are also well equipped to pursue graduate degrees in engineering, dentistry, medicine, or law.

## **Participation**

### **Admission**

Students in the dual-degree program in engineering have a strong background in mathematics and science, very good academic performance, and a desire to pursue the engineering profession. To be eligible for program admission, students must declare the dual-degree engineering major in either mathematics or physics, write a personal essay, complete a personal interview with the program director, and have at least a 2.5 overall GPA, as well as at least a 2.5 GPA in completed courses in the science division. Although these program admission requirements should normally be completed by the end of a student's first year at Albion, late admission requests are considered by the EAC as needed.

### **Transfer**

After successfully completing three years of approved study at Albion College, DDPE students are required to gain admission to an engineering degree program accredited by the Accreditation Board for Engineering and Technology (ABET). As the admissions requirements of these programs vary substantially, students are required to have their school of transfer approved by the EAC. *Students who transfer to engineering schools that have not been approved by the EAC will not receive an Albion degree.*

The two engineering programs currently affiliated with Albion College are

1. University of Michigan (MI) – College of Engineering
2. Columbia University (NY) – Fu Foundation School of Engineering and Applied Science

Albion has a formal transfer agreement with Columbia University that guarantees admission to Albion College students who successfully complete all required courses in the first attempt with a grade of 3.0, maintain a 3.3 GPA in all required courses and in overall coursework, and satisfy other academic requirements as specified by Columbia. The University of Michigan requires all students to earn a minimum GPA of 3.0 both overall and in science prior to transfer, with higher GPA requirements for more competitive engineering majors such as mechanical, chemical, or electrical engineering. Although meeting these minimum GPA requirements is generally sufficient for admission to

Michigan, it is not a guarantee. Students are strongly recommended to earn GPAs above these minimum admission requirements.

Students unable to meet the GPA requirements of the above two schools, or who would prefer to transfer to an engineering school not listed above, may still participate in the DDPE through transfer to an alternate engineering institution. They will still need to meet all or parts of the Program Requirements, as listed below. See the director of the DDPE for additional information about this option.

## **Program Requirements**

To successfully complete the dual-degree program in engineering, with the intent to transfer to the two schools that are currently affiliated with Albion College (see above), students must complete the following requirements:

### **General Requirements**

While at Albion College, each student must

- complete at least 24 units of college credit *prior* to transfer to an approved school of engineering. 16 of these units must be earned at Albion College;
- maintain a minimum cumulative grade point average of 3.0 and a minimum grade point average in courses in chemistry, computer science, mathematics and physics of 3.0;
- complete the writing competency requirement;
- achieve successful transfer admission to an approved engineering program of study; and
- make an application in writing to the Registrar for the dual-degree program. This application must be submitted by end of the 12<sup>th</sup> week of the student's the junior year *and* receive the endorsement of the Engineering Advisory Committee (EAC);

While at the transfer engineering school, each student must

- maintain a minimum cumulative grade point average of 2.0;
- complete at least 8 units of college credit in an ABET accredited program at the transfer school. These courses must be approved by the EAC for Albion credit.

### **Program Requirements at Albion**

All students in the dual degree program in engineering must complete the following core class requirements:

- LA 101 : First Year Seminar (1 unit)
- Three of the following seven Albion College core requirements (3 units):
  - Artistic, Historical, and Textual Modes of Inquiry
  - Environmental, Ethnicity, Gender, and Global Categories
- Students must complete the College divisional requirements

- Computer Science 171 (1 unit)
  - Economics & Management 101 (1 unit)
  - English 101 (1 unit)
  - Mathematics 141, 143, 245, 247 (4 units)
  - Physics 167, 168, 243, 244 (3 units)
  - Chemistry 121, 123 (2 units)

**Note:** The Modeling and Scientific modes of inquiry are completed by the required courses in science and mathematics.

## **Engineering Emphases Requirements**

All students in the dual degree program in engineering must select and complete one of the below six areas of engineering emphasis. General engineering is appropriate for students interested in aerospace, civil, marine, materials, mechanical, or nuclear engineering.

- **General Engineering** : Phys 191, 245, 250; Math/Phys 375 (3.25 units)
  - **Biomedical Engineering** : Chem 211; Math 309, Math/Phys 375; Phys 191, 250 (4.25 units)
  - **Chemical Engineering** : Chem 211, 212; Phys 191, 250 (3.25 units)
  - **Computer/Electrical Engineering** : CS 173; Math 239; Phys 245, 250; Math/CS 299 or Phys 191 (4.25 units)
  - **Environmental/Geological Engineering** : Math/Phys 375; Bio 210 or Chem 211 or Phys 250; one course from Geo 101, 104, 115; Phys 191 (3.25 units)
  - **Industrial Engineering / Operations Research (IEOR)** : CS 173; E&M 211; Math/CS 299; Math 309; one from Math 310, 311, 326, 349, or 360 (4.25 units)

**Note:** DDPE students selecting IEOR must declare “DDPE: Mathematics – IEOR” as their major. All other DDPE students should declare “DDPE – Physics” as their major.

In connection with the Pre-Engineering catalog revision above, C&RC approved a new course for this program:

**Math/Phys 375 – Introduction to Solid Mechanics**      Instructor: Darren Mason

Offered: \_\_\_\_\_ Fall  Spring Prerequisites: Phys 167, 168; Math 245

Frequency/Duration of Meetings: MTRF @ 50 minutes/day

Course Fee Amount: **Units: 1.00**

Check one option:  Standard grading [Student sin the course will receive numeric grades unless they declare CR/NC or the course is a practicum or an internship]

## **Course Description:**

**Statics:** Forces, Moments, & Couples; Equilibrium of particles and rigid bodies; Trusses and frames, Distributed Loads. **Mechanics:** Stress/strain, classification of material behavior, generalized Hooke's law. **Engineering applications:** axial loads, torsion of circular rods and tubes, bending and shear stresses in beams, deflection of beams, combined stresses, stress and strain transformation. Mohr's circle. Elastic stability/buckling of columns.

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Curriculum & Resources Committee approved a revision to the Biology Department major. The Biology Department proposes to change Biol 206: Tropical Forest and Reef Biology from an elective course required for the major to a course that satisfies the “List I” field course requirement. The revised Catalog language follows:

## **Majors and Minors**

### **Requirements for Major**

Eight units in biology, of which at least six must include a laboratory.

Biol 195: Ecology, Evolution and Biodiversity

Biol 210: Cell and Molecular Biology (requires Chemistry 121 as a prerequisite or corequisite).

Biol 300: Genetics.

At least one course from each of the following three lists:

#### **LIST I**

##### **Biol 206: Tropical Forest and Reef Biology**

Biol 215: Aquatic Botany

Biol 216: Vascular Plants

Biol 225: Invertebrate Zoology

Biol 227: Vertebrate Zoology

Biol 237: Ecology

Biol 248: Ornithology

#### **LIST II**

Biol 301: Cell Biology

Biol 310: Evolution

Biol 312: Advanced Genetics Laboratory (1/2 unit)

Biol 314: Comparative Anatomy

Biol 312: Medical Microanatomy

Biol 324: Developmental Biology

Biol 332: Microbiology

Biol 341: General Physiology

#### **LIST III**

Biol 362: Molecular Biology

Biol 365: Environmental Microbiology

Biol 366: Medical Endocrinology

Biol 367: Virology

Biol 368: Behavioral Ecology

Biol 369: Population Genetics

Biol 371: Pathophysiology

Biol 401 or 402: Seminar

Biol 411 or 412: Directed Study

Note: Requirement is for one course.

- Two units of chemistry unless a substitution is approved in advance by the staff. The biology faculty strongly recommends that Chemistry 121 and Chemistry 211 be taken to satisfy this requirement. Chemistry 101, 107 and 200 do not fulfill this requirement. Further study in chemistry, physics, geology and mathematics is recommended and encouraged.
- All biology courses and cognate courses must be taken for a numerical grade, except those offered only on a credit/no credit basis.
- No more than one unit of internship credit (391, 392) can count toward the major. No more than one unit of seminar (401, 402) and no more than one unit of directed study (411, 412) credit can count toward the major.
- Neither Biology 111 nor Biology 190 (given only for AP credit) can count toward the major.
- A senior examination must be taken for assessment purposes.
- It is expected that six of the eight units in biology be taken at Albion College. Other arrangements will be made for bona fide transfer students and students in approved off-campus programs.

### **Information on Minors**

- The minor in cell and molecular biology and the minor in environmental biology are not open to biology majors.
- Students may not choose more than one minor in the Biology Department.
- All courses for a biology minor must be taken for a numerical grade, except those offered only on a credit/no credit basis.
- Neither Biology 111 nor Biology 190 (given only for AP credit) can count toward any minor in biology.
- A senior examination must be taken for assessment purposes.

### **Requirements for Minor in Cell and Molecular Biology**

- Five units in biology, including the following: Biology 195, 210 (requires Chemistry 121 as prerequisite or co-requisite), 300. Any two of the following, of which at least one must include a laboratory: 301, 321, 324, 332, 337 (may be taken as Chemistry 337), 341, 362, 365, 367

### **Requirements for Minor in Environmental Biology**

- Five units in biology, including the following:  
Biology 195  
Four of the following, including:  
At least two from 215, 216, 225, 227, 248

At least one from 206, 210 (requires Chemistry 121 as prerequisite or co-requisite), 237, 365, 368 (365 and 368 require Biology 300 or permission of the instructor as prerequisite)

### **Requirements for Major with Secondary Education Certification**

- Eight units in biology, including the following: 195, 210, 300; one unit (200-level or higher) "animal" course; one unit (200-level or higher) "plant" course. Of the latter two courses, one must be from List I. In addition, one unit in the major must be from List II. At least six of these courses must include a laboratory.
- Two units in chemistry unless a substitution is approved in advance by the staff. The biology faculty strongly recommends that Chemistry 121 and Chemistry 211 be taken to satisfy this requirement. Chemistry 101, 107, and 200 do not fulfill this requirement.
- One unit chosen from the following laboratory cognates: Geology 101 (lab required), 103 (lab required), Physics 115 (lab required).
- Completion of all other requirements for teacher certification. Students will design their program of study in consultation with the biology faculty and must obtain written approval of the Biology Department chair, preferably no later than the beginning of the second semester of the junior year.

### **Requirements for Minor with Secondary Education Certification**

- Five units in biology, including the following:  
Biology 195, 210 (requires Chemistry 121 as prerequisite), 300  
One of the following: 215, 216  
One of the following: 225, 227, 248, 314
- Completion of all other requirements for teacher certification.

### **Requirements for Interdisciplinary Major in Integrated Science with Elementary Education Certification**

Students interested in pursuing elementary education certification may wish to consider an interdisciplinary major in integrated science. The integrated science major is primarily intended for students seeking a broad, cross-disciplinary understanding of the natural sciences. Students completing a major in integrated science are required to take courses in all the natural sciences and also to choose a minor in biology, chemistry, geology or physics. The detailed requirements for the major are provided in this catalog or are available from the Education Department.

### **Biology Courses**

The courses listed below count toward the biology major or minors unless otherwise noted. Some courses in the department are offered in alternate years and are so designated below. Please consult with the instructor or with the Class Schedule, available online or at the Registrar's Office, to determine when a course will next be offered.

#### **111 First-Year Colloquium in Biology (1/4)**

Prerequisites: First-year standing and invitation of instructor.

Seminar in which selected topics and research papers are reviewed and discussed. Offered on

credit/no credit basis. Does not count toward the biology major or minors. Two-hour discussion.  
*Staff.*

**187, 188, 189 Selected Topics (1/4, 1/2, 1)**

An examination of subjects or areas not included in other courses. *Staff.*

**195 Ecology, Evolution and Biodiversity (1)**

Focuses on whole organisms and their evolutionary and ecological relationships. Evolutionary processes, biological diversity, conservation biology and human impacts on ecology and biodiversity are major themes. Skills introduced are hypothesis testing, experimental design, use of primary literature in writing assignments and basic statistics. Lecture and laboratory. *Staff.*

**206 Tropical Forest and Reef Biology (1)**

Prerequisites: Biology 195 and permission of instructors.

An introduction to rain forests, mangrove islands and coral reefs of the neotropics. Students meet weekly throughout the semester and must spend spring break in Belize, Central America, where intensive field trips and individual projects are conducted. ~~Counts as an elective toward the biology major, but does not satisfy the field work or seminar requirements.~~ Lecture/discussion. Offered in alternate years. *Team-taught.*

**207 Biology of Subtropical Florida (1)**

Prerequisite: Biology 195 and permission of instructors.

An introduction to the ecosystems of subtropical Florida. Students meet weekly throughout the semester and must spend spring break in Florida, where intensive field trips and individual projects are conducted. Counts as an elective toward the biology major, but does not satisfy the field work or seminar requirements. Lecture/discussion. Offered in alternate years. *Team-taught.*

**210 Cell and Molecular Biology (1)**

Prerequisite: Biology 195. Prerequisite or corequisite: Chemistry 121.

Focuses on organisms at the cellular and molecular levels, including biological chemistry, bioenergetics and metabolism, Mendelian and molecular genetics, cellular communication and the molecular control of the cell cycle. Builds upon skills from Biology 195 to expand abilities in hypothesis testing and experimental design to produce an individual research paper, and to carry out more advanced statistical analyses. Lecture and laboratory. *Staff.*

**211 Sophomore Research (1/2)**

Prerequisites: Sophomore standing and invitation of instructor.

Independent research projects for invited sophomores. *Staff.*

**215 Aquatic Botany (1)**

Prerequisite: Biology 195.

A study of representative algae, aquatic fungi and bryophytes, emphasizing the relationships of structure and function. Reproductive strategies and environmental physiology are discussed. Taxonomy is based upon current hypotheses of evolutionary relationships. Lecture and laboratory. Offered in alternate years. *Schmitter.*

**216 Vascular Plants (1)**

Prerequisite: Biology 195.

Morphology, taxonomy and distribution of vascular plants. Representatives of local flora receive special attention in laboratory and field studies. Lecture and laboratory. *Skean*.

**225 Invertebrate Zoology (1)**

Prerequisite: Biology 195.

Field-oriented course emphasizing evolution, classification, ecology, behavior and natural history of invertebrate animals. Class involves field trips and use of the Whitehouse Nature Center.

Lecture and laboratory. *McCurdy*.

**227 Vertebrate Zoology (1)**

Prerequisite: Biology 195.

Classification, behavior, ecology and evolution of the vertebrates. Mammals and birds are emphasized more than other groups. Lecture and laboratory. *Kennedy*.

**236 Ecology for K-8 Pre-service Teachers (1)**

Prerequisite: Admission to the elementary teacher certification program.

A field-based ecology course on topics including ecosystems, energy flow, evolution, population dynamics, community ecology and human impacts on the environment. Specific focus on the Michigan Science Curriculum Standards and Benchmarks. Taught at the Pierce Cedar Creek Institute near Hastings, Michigan. Lecture/discussion and laboratory. *Skean*.

**237 Ecology (1)**

Prerequisite: Biology 195.

A study of interactions between organisms and their environment including adaptation, competition, parasitism, population and community dynamics and the ecosystem concept. Class involves field trips and use of the Whitehouse Nature Center. Lecture and laboratory. *Lyons-Sobaski*.

**240 Conservation Biology (1)**

Prerequisite: Biology 195.

Presents concepts and issues concerning the causes and consequences of the loss of biodiversity. Emphasizes the science of conservation biology including the evolutionary potential of populations and species, as well as the history of the field, international efforts to conserve species, and the current status of policies such as the U.S. Endangered Species Act. Includes a conservation-related outreach project. *Lyons-Sobaski*.

**248 Ornithology (1)**

Prerequisite: Biology 195.

The biology of birds with emphasis on evolution, behavior, ecology and conservation. Field experience in identification, population studies, bird banding, song recording and analysis, and carrying out a research project. Students will learn to critically evaluate the ornithological literature. Lecture and laboratory. *Kennedy*.

**287, 288, 289 Selected Topics (1/4, 1/2, 1)**

Prerequisite: Biology 195.

An examination of subjects or areas not included in other courses. *Staff*.

**300 Genetics (1)**

Prerequisite: Biology 210. Not open to students who have completed Biology 317.

Mechanisms of inheritance and of gene structure and function in living organisms. Both classical and molecular genetics are considered as they relate to function. *Staff*.

**301 Cell Biology (1)**

Prerequisite: Biology 300 or permission of instructor.

An in-depth investigation of biological systems at the cellular, subcellular and molecular levels.

Studies of a variety of cell types and energy relations within cells. Lecture emphasizes metabolism, metabolic regulation and cellular diversity. Laboratory emphasizes measurement and analysis of subcellular features. Offered in alternate years. *Schmitter*.

**309 Vertebrate Paleontology (1)**

Prerequisite: Geology 103 or Biology 195.

Must be taken as Biology 309 for credit toward the major. Lecture and laboratory.

Same as Geology 309. *Bartels*.

**310 Evolution (1)**

Prerequisite: Biology 300 or permission of instructor.

A study of the course and processes of organic evolution. Topics include the history of ideas of evolution, population genetics, population ecology, speciation, adaptation, coevolution, evolutionary rates, evolutionary convergences, mass extinctions and biogeography. Lecture and laboratory. Offered in alternate years. *McCurdy*.

**312 Advanced Genetics Laboratory (1/2)**

Prerequisite: Biology 300 or permission of instructor; Chemistry 211 recommended. Not open to students who have completed Biology 317.

Project-based laboratory course that will introduce students to general techniques in genetics.

Under faculty guidance, students will design and carry out their own experiments, read primary literature, and present results in written and oral format. *Staff*.

**314 Comparative Anatomy (1)**

Prerequisite: Biology 300 or permission of instructor.

Comparative anatomical study of vertebrate organ systems, their development and evolution.

Lecture and laboratory. *Kennedy*.

**321 Medical Microanatomy (1)**

Prerequisite: Biology 300 or permission of instructor.

Microanatomy of primate cells and tissues as depicted by light and electron microscopy.

Relationships of structure and function are stressed, as are medical conditions resulting from cell or tissue damage. Lecture and laboratory. *Schmitter*.

**324 Developmental Biology (1)**

Prerequisite: Biology 300 or permission of instructor.

The genetic, molecular and cellular mechanisms underlying early development of multicellular organisms. Potential topics include fertilization and early development, gene regulation during development, neural pathfinding, cell signaling, cell division and growth, organogenesis, limb development, metamorphosis, regeneration, sex determination, the evolution of development, genomics, and stem cell research. Lecture and laboratory. *Albertson*.

**332 Microbiology (1)**

Prerequisite: Biology 300 or permission of instructor; Chemistry 211 recommended.

Introduction to the microbial world. Explores the morphology, physiology, genetics and diversity of microorganisms. Stresses the relationships among microbes and other organisms, including humans. Lecture and laboratory. *Olapade*.

**337 Biochemistry (1)**

Prerequisites: Chemistry 211; and Biology 300 or Chemistry 212; or permission of instructor.

Same as Chemistry 337. Must be taken as Biology 337 for credit toward the major. Lecture.

*Rohlman*.

**341 General Physiology (1)**

Prerequisite: Biology 300 or permission of instructor; Chemistry 211 recommended.

The processes which contribute to the maintenance of dynamic equilibria of cells and how those processes relate to the organismal level of plants and animals. Lecture and laboratory. *Rabquer*.

**362 Molecular Biology (1)**

Prerequisite: Biology 300 or permission of instructor; Chemistry 211 recommended.

The theory and practice of modern molecular genetics will be explored. Techniques potentially considered include: DNA cloning, DNA hybridization, the polymerase chain reaction, DNA sequencing, and the expression of cloned genes in bacteria. Lecture/discussion and laboratory. Offered in alternate years. *Saville*.

**365 Environmental Microbiology (1)**

Prerequisite: Biology 300 or permission of instructor.

Microbes in action: bioremediation, biodegradation, cycling of nutrients and energy flow, biopesticides and phytopathogens, spread of antibiotic resistance, molecular ecology of infectious diseases, microbial symbionts and extremophiles. Explores these and other topics through discussions, field trips and experimental work. Lecture and laboratory. Offered in alternate years. *Olapade*.

**366 Medical Endocrinology (1)**

Prerequisites: Biology 300 or permission of instructor, Chemistry 211; Biology 341 or Chemistry 337 strongly recommended.

Examination of the evolution of endocrinological systems, and the modes of action, mechanisms of control, and interactions of selected human hormonal systems under normal and compromised (disease) states. Offered in alternate years. *Staff*.

**367 Virology (1)**

Prerequisite: Biology 300 or permission of instructor.

Are viruses living organisms or not? Addresses this and many more questions in molecular architecture, replication strategies, transmission modes, pathogenicity, carcinogenicity and usefulness of viruses. Lecture and discussion. lecture and laboratory. Offered in alternate years. *Olapade.*

**368 Behavioral Ecology (1)**

Prerequisite: Biology 300 or permission of instructor.

Patterns and functions of behavior examined from an ecological-evolutionary perspective. Topics include history of animal behavior, behavioral genetics, habitat selection, foraging, antipredator behavior, cooperation and altruism, communication, sexual selection, mating systems, parental behavior and optimality models. Independent field studies of living animals. Lecture and laboratory. Offered in alternate years. *McCurdy.*

**369 Population Genetics (1)**

Prerequisite: Biology 300 or permission of instructor.

An introduction to population genetics, the study of gene frequencies and selection pressures within natural or managed populations. Topics include understanding concepts of genetic variation, recombination, linkage disequilibrium, selection, gene flow, genetic drift and mutation, as well as quantitative genetics. *Lyons-Sobaski.*

**371 Pathophysiology (1)**

Prerequisites: Biology 210, Chemistry 121; Chemistry 211 recommended.

Develops an understanding of the physiological basis of disease. Relates changes in function that contribute to disease states in otherwise normally functioning physiological systems. Presents the functional anatomy and physiological basis of "healthy" human systems in a normal state, and then examines compromises that result from disease states. Intended for students planning to pursue post-graduate studies in programs such as nursing, physician assistant, physical therapy and medicine. *Rabquer.*

**387, 388, 389 Selected Topics (1/4, 1/2, 1)**

Prerequisite: Biology 300 or permission of instructor.

An examination of subjects or areas not included in other courses. *Staff.*

**391, 392 Internships (1/2, 1)**

Prerequisites: Junior or senior standing and permission of department.

No more than one unit may be counted toward the major. Offered on a credit/no credit basis. *Staff.*

**401, 402 Seminar (1/2, 1)**

Prerequisites: Biology 300 and junior or senior standing, or permission of instructor.

Topics in diverse areas of biology. Recent topics have included genes and cancer, literature and medicine, conservation biology, and biology of sharks and their relatives. Discussion. *Staff.*

**411, 412 Directed Study (1/2, 1)**

Prerequisites: Junior or senior standing and approval by both the faculty sponsor and department

chair of a research proposal prior to registration.

Independent research by an individual student under the direction of a staff member. A detailed summary research paper or other appropriate evidence is required at the end of the work. Normally offered on a credit/no credit basis. *Staff*.

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### **Faculty Development Committee:**

The Faculty Development Committee has awarded the following grants:

#### **Small Grant:**

**Jeff Wilson**, Psychological Science, for page charges for Peer J.

#### **Large Grant:**

**Nels Christensen**, English, to do research at the Charles Young Library at UCLA.

**Anne McCauley**, Art & Art History, for the purchase of frames for artwork created during two summer artist residencies.

**Perry Myers**, Modern Languages & Cultures, for participation in the ASIANetwork India Seminar.

#### **Combined Small and Large Grant:**

**Brad Chase**, Anthropology/Sociology, for a semester break research trip on a new excavation at Navinal, Gujarat, India.

**Center for Teaching & Learning** to support the Spring 2014 Albion College Teaching Symposium.

## **II ANNOUNCEMENTS FROM PROVOST'S OFFICE**

### **Grants**

Albion College has been awarded a **NetVUE Program Development Grant** of \$50,000 from the Council of Independent Colleges. The College is a founding member of NetVUE, the Network for Vocation in Undergraduate Education, and is one of 36 institutions selected this year. The grant is funded through a partnership between CIC and the Lilly Endowment and will extend from January 2014 to December 2015.

The NetVUE Program Development Grant will provide Albion College with resources to further Albion's commitment to helping students find and engage in meaningful life work. The College will enhance programming for vocational exploration with greater faculty and staff involvement,

enhanced advising, and an incentive program for student engagement. In his letter of support for the grant, Interim President Mike Frandsen wrote, “By weaving such programming into Albion College’s existing faculty and staff mentoring and training, academic advising, and co-curricular programming, the efforts supported by the grant will greatly enhance our sense of ourselves as one college, aligned in mission and purpose.”

**Jocelyn McWhirter** (Religious Studies) has received a \$1,000 grant from the Wabash Center for Teaching and Learning in Theology and Religion. The funds will support four Albion College seniors who plan to survey their peers regarding the role of religious commitments in the classroom. Survey results will inform the work of the 2013-14 Wabash Colloquy on Religious Commitments in the Undergraduate Classroom. Jocelyn is one of sixteen colloquy participants.

The National Academies is pleased to announce a call for nominations and applications for the **2014 Jefferson Science Fellows program**. Initiated by the Secretary of State in 2003, this fellowship program engages the American academic science, technology, engineering and medical communities in the design and implementation of U.S. foreign policy.

Jefferson Science Fellows (JSF) spend one year at the U.S. Department of State or the U.S. Agency for International Development (USAID) for an on-site assignment in Washington, D.C. that may also involve extended stays at U.S. foreign embassies and/or missions.

The fellowship is open to tenured academic scientists, engineers and physicians from U.S. institutions of higher learning. Nominees/applicants must hold U.S. citizenship and will be required to obtain a security clearance.

The deadline for 2014-2015 program year applications/nominations is **January 13, 2014**. To learn more about the Jefferson Science Fellowship and to apply, visit the JSF website at: [www.nas.edu/jsf](http://www.nas.edu/jsf).

**The Council of Independent Colleges and the Center for Hellenic Studies** will co-sponsor a seminar on the *Odyssey*, to be held in Washington, D.C., July 22-26, 2014. The seminar is open to full-time faculty in all fields at CIC member colleges, and will offer faculty members from a wide range of institutions and disciplines a superb opportunity to extend their knowledge of ancient sources and develop strategies for incorporating them into courses. The seminar is designed for non-specialists, and addresses the challenge of keeping alive in undergraduate education classical texts such as the Homeric Hymns, poetry of Hesiod, and *Histories* of Herodotus. The only expense to selected participants will be transportation to and from Washington. Nomination from the chief academic officer is required. For additional information, guidelines and online nomination forms see: [www.cic.edu/AncientGreece](http://www.cic.edu/AncientGreece).

**The Council for International Education Exchange** announces its *International Faculty Development Seminars for 2014*. Each seminar includes 10 or 11 days of lectures and discussion sessions, engaging site visits, community-based activities and scholarly exchange with local institutions and academics. For additional information, see: [www.ciee.org/ifds](http://www.ciee.org/ifds).

### **III SCHOLARLY AND PROFESSIONAL DEVELOPMENT**

**Vicki Baker** (Economics & Management) has been invited to participate in the Elon Center for Engaged Learning Research Seminar on Excellence in Mentoring Undergraduate Research. The Seminar is a two-year research seminar, supports individuals interested in pursuing research that advances excellence in mentoring undergraduate research.

**Andy Boyan** (Communication Studies) had his paper, "Cheating in a sports media context: Childhood sports experience and moral foundations," accepted for presentation at the 2014 International Association of Communication and Sport Summit to be held in New York City in March 2014.

**John Carlson** (Economics & Management) mentored a team of E&M students in a national accounting competition sponsored by the American Institute of Certified Public Accountants (AICPA). He and Team Albion (Victoria Slater, John Rogers, Don Strite and Peter Curry) made it to the semi-finals (the top 15 teams). Their original 1000 word essay got them to the semi-finals where the teams were charged with creating a video presentation that was voted on by the public.

**Dianne Guenin-Lelle** (Modern Languages & Cultures) and **Ron Mourad** (Religious Studies) had their entry on Jeanne-Marie Bouvier de La Motte Guyon, Madame du Chesnoy appear in the Encyclopedia Britannica in November.

Dianne presented a paper, "Tales of the Revolution of 1768 in New Orleans: Agency, Political Violence and Repression," at the annual meeting of the Pacific Ancient and Modern Language Association, in San Diego, CA, in November.

**Jon Hooks** (Economics & Management) coached and mentored the Fed Challenge Team (Heather Waldron, Sarah Erdman, John Rogers and Michael Davis) that traveled to Chicago to compete for the Regional Fed Challenge title. They competed against teams from University of Chicago, University of Michigan, DePaul, Northwestern and 10 other colleges.

**Darren Mason** (Mathematics & Computer Science) was co-author on the presentation "Estimating the Critical Resolved Shear Stresses Ratios of the Deformation Systems in  $\alpha$ -phase Titanium" which was presented during the *Materials Science & Technology 2013* conference at the Palais des Congres de Montréal in Montréal, Canada, on October 29, 2013. Darren's collaborators were T.R. Bieler, M.A. Crimp, and C.J. Boehlert of Michigan State University and H. Li of Intel Semiconductors.

**Anne McCauley** (Art & Art History) had her drawing, Passage 13, selected for *drawing DISCOURSE*, the 5<sup>th</sup> Annual Exhibition of Contemporary Drawing to be exhibited January 17 through March 17, 2014 at the University of North Carolina, Asheville.

**Perry Myers** (Modern Languages & Cultures) has an essay appearing in a book to be released this month: "German Travelers to India at the Fin-de-siècle and their Ambivalent Views of the Raj," in *Transcultural Encounters Between Germany and India: Kindred Spirits in the 19<sup>th</sup> and*

*20<sup>th</sup> Centuries*. Eds. Joanne Miyang Cho, Eric Kurlander, and Douglas McGetchin. (Routledge, 2013).

**Ola Olapade** (Biology) had his article, “Occurrence, Ubiquity and Proficiency of Hydrocarbon-Degrading Microbial Assemblages in Nature,” appear in the Journal of Pollution Effects & Control.

Along with their students, **Nicolle Zellner** (Physics) and **Vanessa McCaffrey** (Chemistry) presented research at the 17th annual meeting of the Michigan Space Grant Consortium on November 2 in Ann Arbor. **Nicole Garrett Smeltekop** (Library) was a co-author on a poster about the Alvan Clark telescope.

E. Earl, N.E. B. Zellner, V. P. McCaffrey, 2013, *The Effects of a High-Velocity Impact and Catalytically Active Materials on Simple Sugars*, Michigan Space Grant Consortium Meeting, Ann Arbor, MI, November 2. Oral presentation.

S. Blachut and N. E. B. Zellner, 2013, *Statistical Analysis of Lunar Impact Glass Samples*, Michigan Space Grant Consortium Meeting, Ann Arbor, MI, November 2. Poster presentation.

N. E. B. Zellner and N. Garrett Smeltekop, 2013, *130 Years of Astronomy at Albion College*, Michigan Space Grant Consortium Meeting, Ann Arbor, MI, November 2. Poster presentation.

**Nicole Garrett Smeltekop** (Archivist) presented at the Michigan Collections Network Conservation Camp on November 20th. She spoke about the DIY Humidity Chamber she created last summer for rolled documents and photographs in the archives.

### **Geological Sciences:**

**Carrie Menold, Thom Wilch, Tim Lincoln** and six geology students attended the Annual Meeting of the Geological Society of America in Denver in late October and made the following presentations:

Fluid inclusion study of gold-bearing quartz veins in the southern Black Hills, South Dakota. James Reynolds '14 and Tim Lincoln.

The Third 90 Network, a collaborative, interdisciplinary program to support under-represented students and encourage them to pursue careers in environmental sciences. Tim Lincoln.

Characterization of an eruptive sequence of cinder and spatter cones in the Ice Springs Volcanic Field of the Black Rock Desert, Utah. Ben Hinks '14, Thom Wilch, Ellen Redner '14, and collaborators.

Constraining extent of metasomatism with oxygen isotope geochemistry of zircons from UHP orthogneiss, North Qaidam, China. David Huggins '14, Carrie Menold, Marty Grove

Non-uniform water and nutrient input to the upper Kalamazoo River, Michigan. Heidi Keller '14, Noelle Scelina '14, Tim Lincoln and Thom Wilch.

Reconstruction of eruption conditions based on crater rim stratigraphy at Miter Crater, Ice Springs Volcanic Field, Black Rock Desert, Utah. Ellen Redner '14, Thom Wilch, Ben Hinks '14, and collaborators.

Evidence of inflation and deflation in lava flows west of Miter Crater, Ice Springs Volcanic Field, Black Rock Desert, Utah. Thom Wilch (co-author with collaborators).

Infusion of undergraduate research experiences into the geology program at Albion College. Thom Wilch, Bill Bartels, Beth Lincoln, Tim Lincoln, Mick McRivette, and Carrie Menold.