

Acalog ACMS™ 2015-2016 Undergraduate Catalog (WORKING DRAFT)

Secondary Education Biology Major

Revised Program, effective Winter 2015

Successful completion of this course of study, in the context of other program requirements, qualifies the student for recommendation for the Michigan Department of Education Secondary Provisional Certificate endorsed in biology, certification code DA and, depending on the minor selected, an additional endorsement. This program of study meets all requirements of the National Science Teachers Association. The Michigan Test for Teacher Certification (MTTC) covering this field is #017, "Biology."

Department Information:

Biology Department - College of Arts & Sciences

Daniel Clemans, Ph.D., Department Head (I)

316 Mark Jefferson

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[Department Website](#)

Advisor Information:

Students are strongly encouraged to make annual appointments with a departmental advisor by contacting:

Biology Department Office - (734) 487-4242

A faculty advisor will help you determine which courses to take and in what sequence, to make sure that you satisfy your degree requirements as efficiently as possible. If you have not already seen a Biology faculty advisor, you should make an appointment as soon as possible, and schedule yearly appointments thereafter.

For a list faculty advisors for specific interest areas, please follow this [link](#).

Initial Teacher Preparation Program Admission

In order to pursue the sequence of courses necessary to complete eligibility for recommendation for certification, one must apply for and be admitted to the teacher preparation program. Admission requirements are common for all teacher preparation programs, except that certain special education programs have additional requirements.

Each undergraduate student is responsible for applying to the teacher preparation program immediately after the semester in which the student has earned 56 credit hours. Transfer students with more than 56 credit hours should apply

immediately after the semester in which they have earned 12 hours at EMU, including at least one course in their major. Students with 56 hours of transfer course work with a decision GPA of 3.0 may apply for admission to the teacher preparation program without 12 earned hours at EMU.

Admission to the teacher preparation program is not automatic. Only those persons who have formally applied are considered for admission. Not all persons who apply become eligible for admission.

Applications for the Initial Teacher Preparation Program at EMU **are available within your my.emich account under the "Student" tab**. Submit your completed application to the Office of Academic Services once you have earned 56 credit hours.

Teaching majors and minors are unofficial until program admission. Students pursuing teacher certification should follow the catalog that exists at the time of program admission. It is important that students apply to the teacher preparation program as soon as they have earned 56 credit hours.

Criteria:

1. Completion of 56 credit hours
2. Appropriate cumulative GPA. One of:
 1. An overall EMU GPA of 2.5 or higher based on a minimum of 12 credit hours taken at EMU. An EMU GPA of 2.5 or higher in your major, based on at least one course in your major. The Elementary Education Major is comprehensive, therefore, the elementary major GPA is based on the cumulative of liberal arts curriculum and content course work.
 2. Transferred 56 credits with a cumulative 3.0 GPA from all previous institutions.
3. A grade of "C" or higher (if taken) in the following courses:
 1. *If Secondary:* [ENGL 121](#), [CTAC 124](#), [Quantitative Reasoning \(GEOR\)](#), one lab science, all professional education courses, and, if special education, [PSY 101](#).
 2. *If Elementary:* [ENGL 121](#), [CTAC 124](#), [MATH 108](#), [MATH 110E](#), [PHY 100](#), [ESSC 202](#), all of the professional education courses, all courses that state "for elementary teachers," and, if special education, [PSY 101](#).
4. Official Test Scores showing competency in each of the following areas: mathematics, reading and writing. Scores are accepted from the Professional Readiness Exam (PRE), Basic Skills Test (no longer offered), ACT, or Michigan Merit Exam (MME). The following scores are acceptable:
 1. *Mathematics:* PRE pass, Basic Skills pass, ACT mathematics 22 or higher, or MME mathematics 1116 or higher.
 2. *Writing:* PRE pass, Basic Skills pass, ACT combined English/writing 24 or higher, or MME writing 1129 or higher.
 3. *Reading:* PRE pass, Basic Skills pass, ACT reading 22 or higher, or MME reading 1108 or higher.
5. ICHAT criminal background check and Statement of Civil/Criminal Convictions. If you answered yes to any of the civil/criminal conviction questions on the application, you will need to provide:
 1. A copy of the Judgment of Sentence, or Registrar of Actions, or Certification of Conviction.
 2. A written explanation of the offense(s). Application of students with civil/criminal convictions will be carefully reviewed and may take longer to process.
6. Meet academic, social, moral, and financial obligations as a member of the EMU community.

General Education Requirements:

For specific requirements refer to the [General Education Program](#).

Major Requirements: 57-59 hours

Required Foundation Courses: 29 hours

- [BIO 110 - Introductory Biology I \(GEKN\)](#) 3 hrs
and
- [BIO 111 - Introductory Biology I Laboratory \(GEKN\)](#) 2 hrs

- [BIO 120 - Introductory Biology II](#) 3 hrs
and
- [BIO 121 - Introductory Biology II Laboratory](#) 2 hrs

- [BIO 301 - Genetics](#) 3 hrs
- [BIO 305 - Cell and Molecular Biology](#) 3 hrs
- [BIO 310 - Ecology](#) 3 hrs
- [BIO 315 - Evolution](#) 3 hrs
- [BIO 326 - Human Physiology](#) 3 hrs
- * [BIO 406 - The Nature of Science](#) 1 hr

One course from the following:

- [BIO 306W - Cell and Molecular Biology and Genetics Laboratory \(GEWI\)](#) 3 hrs
- [BIO 311W - Laboratory in Ecology \(GEWI\)](#) 3 hrs

Elective Courses: 1 hour

One hour at the 300-level or above in biology selected in consultation with a biology advisor. The courses must have a minimum prerequisite of [BIO 120](#). BIOT courses may not be counted toward a biology major.

Chemistry: 16-17 hours

- [CHEM 121 - General Chemistry I \(GEKN\)](#) 3 hrs
- [CHEM 122 - General Chemistry I Laboratory \(GEKN\)](#) 1 hr
- [CHEM 123 - General Chemistry II](#) 3 hrs
- [CHEM 124 - General Chemistry II Laboratory](#) 1 hr

Select either option I or option II:

Option I:

- [CHEM 371 - Organic Chemistry I](#) 3 hrs
- [CHEM 372 - Organic Chemistry II](#) 3 hrs
- [CHEM 373 - Organic Chemistry Laboratory](#) 2 hrs

Option II:

- [CHEM 270 - Survey of Organic Chemistry](#) 4 hrs
- [CHEM 271 - Organic Chemistry Laboratory](#) 1 hr

One course from the following:

- [CHEM 351 - Foundations of Biochemistry](#) 4 hrs
- [CHEM 451 - Biochemistry I](#) 3 hrs

Physics: 8 hours

- [PHY 221 - Mechanics, Sound and Heat \(GEKN\)](#) 4 hrs
- [PHY 222 - Electricity and Light](#) 4 hrs

Math: 3-4 hours

One course from the following:

- [MATH 120 - Calculus I \(GEOR\)](#) 4 hrs
- [MATH 170 - Elementary Statistics \(GEOR\)](#) 3 hrs

Professional Secondary Education Sequence

Secondary Education Pre-Admission Phase: The Learner and the Community: 7 hours

Prerequisite: Sophomore standing or higher.

- [EDPS 322 - Human Development and Learning](#) 4 hrs
- [SPGN 251 - Introduction to Inclusion and Disabilities Studies in a Diverse Society \(GEUS\)](#) 3 hrs

The following phases require formal admission to the Initial Teacher Preparation Program:

Secondary Education Phase I: Curriculum, Assessment and the Social Context: 15 hours

Prerequisite: Completion of Pre-Admission Phase is required.

* These two courses must be taken together.

** These courses must be taken with or after [CURR 305](#).

- * [CURR 305 - Curriculum and Methods: Secondary](#) 3 hrs
- ** [EDMT 330 - Instructional Applications of Media and Technology](#) 3 hrs
- ** [EDPS 340 - Introduction to Assessment and Evaluation](#) 3 hrs
- * [PRCT 305L4 - Practicum I: Secondary \(GELB\)](#) 3 hrs

- [SOFD 328W - Schools for a Diverse and Democratic Society \(GEWI\)](#) 3 hrs

Secondary Education Phase II: Content and Methods and Teaching: 9 hours

Prerequisite: Completion of Phase I is required.

* These two courses must be taken together.

- * [PRCT 311L4 - Practicum II: Secondary \(GELB\)](#) 3 hrs
- * [RDNG 311 - Teaching Reading in the Secondary School](#) 3 hrs

Methods Course by Major:

Biology Majors take:

- [BIOT 403 - Methods for Teaching Secondary Biology](#) 3 hrs

Secondary Education Phase III: Capstone Experience: 9 hours

Prerequisite: Completion of Phase II and 100 pre-student teaching hours is required.

- [EDUC 492L4 - Student Teaching \(GELB\)](#) 9 hrs
This course requires a formal application to be submitted 7-8 months prior to the Student Teaching semester.

Minor Requirements:

This program requires a minor. Please contact your program advisor for a list of possible minors.

Program Total:

Students must earn a minimum total of 124 credits at the 100-level or above.

MTTC Subject Area Test

Starting January 1, 2013, Students seeking licensure in a secondary or K-12 area are not required to take the MTTC subject area test in their minor area. Students who elect not to take the test in their minor will be required to sign a statement indicating that they understand that they will not be endorsed in their minor area and will not be eligible for teaching positions in their minor unless they pass the minor subject area test within five years of completing field experience and course requirements.

Notes:

Each student must choose a writing intensive course as part of major completion requirements. Options are [BIO 306W](#) and [BIO 311W](#).

* [PHY 406](#), [CHEM 406](#) or [ESSC 406](#) may be substituted for [BIO 406](#)

Critical Graduation Information:

The following are minimum requirements for all bachelor's degrees awarded by Eastern Michigan University. Some majors and minors require more than the minimum in one or more of the areas below; students are urged to consult the on-line catalog for the requirements of their particular programs.

- Earn a minimum total of 124 credits at the **100-level and above**. **Courses with numbers below 100 will not be counted toward this degree requirement. At most 8 credit hours of physical education (PEGN) activity courses will be counted toward this requirement.**
- Meet the requirements of the General Education program (see information below).
- Complete a [Writing Intensive \(WI\)](#) Course in your major.
- Earn a minimum of 60 credits from a four-year college or university; **courses taken at community colleges cannot be used to meet this requirement.** (Some formal program-to-program articulation agreements modify this requirement. See specific agreements for details.)
- Earn a minimum of 30 credits from courses taken at EMU.
- Complete 10 of the last 30 hours for the degree from courses taken at EMU.
- Have a minimum of 30 *unique* credit hours in their major and 20 *unique* credit hours in their minor for a total of at least 50 unique credit hours between them. Some majors that require 50 or more hours themselves do not require a minor; students should check requirements of the selected major in the undergraduate catalog to see if a minor is required.
- Earn no more than 60 credit hours in one subject area (prefix). Credits in excess of the 60 maximum will not be counted toward the minimum of 124 credits required for a bachelor's degree.
- Earn the minimum number of credits in 300-level and above courses in each major and minor as specified below - these credits must be earned in distinct courses, that is, no course can be used to fulfill this requirement in more than one major or minor.
 - Earn a minimum of 6 credits in 300-level or higher courses at EMU in each minor
 - Earn a minimum of 9 credits in 300-level or higher courses at EMU in each major that requires a minor.
 - Earn a minimum of 15 credits in 300-level or higher courses at EMU in each major that does not require a minor
- Transfer credit will be awarded for courses taken at colleges and universities that are accredited by one of the recognized regional accrediting bodies only if the courses are college-level (equated to 100-level or above at EMU) and the student earned a "C" (or 2.0 on a 4 point scale) or better. Transfer credit may be awarded on a case-by-case basis for college-level courses in which a "C" (2.0) or better was earned at institutions outside the U.S. or at non-accredited U.S. institutions; the internal review of such courses is conducted by individual departments/schools within EMU, and additional documentation may be required. *Please note:* EMU awards only credits for transferred courses; grades are not used in the calculation of an EMU GPA.
- Earn a minimum cumulative GPA of 2.0 in courses taken at EMU order to graduate. In addition, a minimum GPA of 2.0 must be reached in courses taken at EMU in each major and minor. (Note: some programs may require a higher GPA - check with your program advisor.)

General Education Requirements:

EMU's General Education Program requires students to choose from a menu of approved courses in several different areas do not assume that other courses in the same department or with similar names will fulfill these requirements. A detailed description of General Education requirements is available on the General Education section of the catalog: [General Education](#)

Students who transferred to EMU may have modified general education requirements based on Michigan Transfer Agreement (MTA) or articulation agreements; consult your academic advisor for additional information.

University Information: Consult the on-line catalog at catalog.emich.edu.
