

General Biology Program for Secondary School Science Teachers

Nature of the Program

The master of science degree in General Biology is designed for in-service high school and middle school biological science teachers who have a good biology background (a minimum of 18 units of biology courses). The program combines biology content with modern pedagogical practice that is grounded in studies of student learning. Today's science education reforms recommend inquiry-driven, laboratory/field-focused curricula. This creates a need for teachers who have a greater depth of content, knowledge and experience designing and conducting experiments. In order to teach the science process effectively, teachers need to experience the critical thinking, problem-solving process in which scientists engage. This program requires that participants take a critical look at their teaching methods and materials. Program participants have access to curriculum resources and faculty throughout the academic year.

Because this is a summer-oriented graduate program, it is extremely demanding and intensive. Participants must be prepared to devote virtually all of their time to their studies. While the majority of courses will be taken during the summers, participants must take some units during the fall and/or spring semesters each year. The understanding, support and cooperation of your family, friends, and school administration will be crucial to your happiness and success in the program.

Many teachers choose to participate on a part-time basis, which naturally extends the length of time required to complete the M.S. degree requirements accordingly. Participants are allowed a 6-year timeframe in which to complete all coursework involved in the M.S. degree.

Effective Summer 2009, the General Biology Program courses will be offered in an online format. For a majority of these courses, this means you may participate from your home without having to come to the University of Arizona campus. However, the Secondary Biology Lab Curricula class is a hybrid (partially online/partially in-classroom) course, which means you must come to Tucson July 19-24, 2009 to participate in the in-classroom activities. We have reserved on-campus housing for out-of-town participants. Your cost for this housing would be ~\$25/night for a private room, or ~\$21/night for a shared room.

After completing the first year courses (Biology Update 1 & 2, and Secondary Biology Lab Curricula), you will be ready to start your research project. Typically this is done over 2 summers. If your school is on a year-round calendar, you may elect to do your research during your vacations, as long as you have the consent of your research advisor.

After completing your research, you will create a lesson unit that you will field test in your classroom. You will also present an 8-hour workshop to other teachers and write a master's thesis.

Suggested Course of Study

The following suggested course of study is outlined to enable students to complete the degree requirements (a total of 32 units) in approximately 4 years.

	Summer Session I	Summer Session II	Fall	Spring
Year 1	TAKE 2 OF THE FOLLOWING CLASSES: BIOC 633 Secondary Biology Lab Curriculum (3u) AND BIOC 623c Biology Update 1 (in-class version) (3u) OR BIOC 623d Biology Update 2 (in-class version) (3u) OR Elective (2-3u)		BIOC 623c Biology Update (3u) ¶	BIOC 799 Ind. Study 2 (1u) - Follow-up Sec. Biol. Lab Curric. BIOC 623d Biology Update (3u) ¶
Year 2	BIOC 900 Research (4u)** (8-Week session this summer)		Elective (3u) (if convenient)	Elective (3u) (if needed and convenient)
Year 3	BIOC 900 Research (2u)** BIOC 643a Biology Lesson Development (2u) (8-Week session this summer)		Elective (3u (if needed and Convenient)	BIOC 699 Ind. Study 3 (1u) - Field Test Lessons
Year 4	BIOC 691a Workshop Devel. & Presentation (1u) ‡ BIOC 910 Thesis (2u) write thesis (5-week session)	Defend thesis & complete degree requirements GRADUATE!! (5-week session)		

¶ Take BIOC 623c or 623d on-line in the fall and/or spring semester, if you didn't take them the previous summer.

** Six units of research are required.

‡ Workshop can be taught any time of year. Register during the semester in which you present your workshop.

§ Thesis is written and defended during the summer, but your degree will be awarded in the Fall semester due to Graduate College deadlines. You must register for at least 1 unit of credit during the semester in which you complete your degree requirements.

ELECTIVES: Nine units of graduate electives are required. Six units must be in the biological sciences. The remaining 3 units can be any approved science, math or education course. Note that up to 6 units of approved 400-level course work taken at the University of Arizona can be used to fulfill the elective requirement. All transfer credit must be at the graduate level (500 or above). No S/P graded courses (i.e., Independent Study and Research) may be used to fulfill the nine-unit elective requirement. Electives may be taken any time **except** the 2nd and 3rd summers, as research and lesson development are demanding courses.

Flexibility of Program

The program is very flexible. You may choose to participate on a full-time or part-time basis (see Suggested Course of Study information above). The University allows students to take a maximum of 6 units of credit during a summer session. This means you may take a maximum of 2 courses in the coming summer. Our online courses in 2010 will start June 7 and end July 30. You **MUST** take BIOC 633 Secondary Biology Lab Curricula in the summer, as that is the only time it is offered.

Some teachers like taking an online course during the school year, as it expedites their time to degree. Other teachers just can't fit a class into their busy academic year schedules. We understand, and so our program is flexible enough for both types of teachers. Feel free to take an online class each Fall/Spring if you wish, or if it's more convenient for you, be a summer-only student and just take classes then.

You may prefer to take up to 6 elective units at another accredited university. These units must be graduate level (500 and above), and you must receive a grade of "A" or "B" in the courses. You will need to provide us with a syllabus and an official transcript showing your grade(s). Note that these courses must also be taken within the 6-year timeframe, and you must get approval from your academic advisor before taking them.

Some participants may wish to accelerate the degree process by taking a one-year sabbatical to attend school full-time. This would allow you to conduct your research (all 6 units) during the Fall and Spring semesters, and you would be able to enroll in your elective courses also.

Program Costs

Registration Fees: A full-time participant in the first summer would take 2 courses (6 units of credit), which currently would cost approximately \$2,550 in registration fees. During the following academic year, a full-time participant would take 1 on-line course (costing ~\$1,350) per semester. Registration fees for the following summers would be less or about the same, depending upon the coursework required each summer. (See enclosed sheet for the breakdown in current registration fees.)

Tuition: The University of Arizona does not charge out-of-state tuition in the summers or for on-line courses in the Fall/Spring semesters. The University does, however, charge a special \$85 technology fee for each on-line course that utilizes the eCollege computer system. You won't have to pay this eCollege technology fee for Research, Thesis, and Workshop courses, but you should expect to pay the fee for all first-year courses as well as electives.

Housing: You will need to spend 1-week on campus in order to participate in the lab component of the Secondary Biology Lab Curricula (BIOC 633) course. If you live outside the Tucson metro area, you may stay on-campus for this week (tentatively scheduled for July 19-23, 2010). Your cost for on-campus housing would be ~\$26/night for a private room, or ~\$22/night for a shared room. You should reserve your room through the Residence Life Office as soon as possible to guarantee a room, as space is limited and fills quickly. You may cancel your reservation if your plans change later.

Financial Aid

We realize that most teachers will need financial assistance while enrolled in this program, and we encourage you to **start searching now** for possible grants and scholarships through <http://www.scholarships.com>. In addition, you may qualify for federal financial aid (FAFSA) <http://www.fafsa.ed.gov>.

We do have some financial aid available for those who qualify:

- Courtesy of a grant from the Howard Hughes Medical Institutes, we are able to offer competitive \$1,000-\$2,000 scholarships to teachers in our program while working on their research projects (usually in the 2nd and 3rd summers). All teachers enrolled in the GBIO M.S. program may apply for this scholarship.
- Courtesy of the University of Arizona College of Science, we will offer partial tuition waivers in the Fall and Spring semesters to students enrolled in the GBIO M.S. program. Tuition waivers may NOT be applied towards the cost of distance-learning courses.

Application Materials

In order to be considered for admission to this program, you must submit your completed application by **March 1**. The following documents are required:

- Graduate College Application & \$65 Application Fee
- Program Application, including Personal Statement
- 3 Letters of Recommendation
- Official Transcripts
- Immunization Form (if you were born after 1956)

We do not require GRE scores. Be sure to complete the top portion of each recommendation form before you give them to your references.

Please send all application materials to:

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