

UMBC UGC New Course Request: BIOL 499L: Undergraduate Research Seminar

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Proposed Effective Date: Spring, 2012

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COURSE INFORMATION:

Course Number(s)	BIOL 499L
Formal Title	Undergraduate Research Seminar
Transcript Title (≤24c)	Undergrad. Research Sem.
Recommended Course Preparation	Two semesters of Biology 499 with the same faculty mentor (pre or co-requisite)
Prerequisite	BIOL300L; BIOL499 or BIOL499H (pre- and co-requisite)
Credits	1
Repeatable?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Max. Total Credits	1
Grading Method(s)	<input checked="" type="checkbox"/> Reg (A-F) <input type="checkbox"/> Audit <input type="checkbox"/> Pass-Fail

PROPOSED CATALOG DESCRIPTION:

BIOL students (BS only) may use independent research in the laboratory of a faculty member as a substitute for one of the upper level laboratory classes required by the major. To do so, students must register for BIOL 499 for two semesters in a row with the same faculty mentor. In the second semester they must also register for this course, BIOL 499L, in which they will give oral presentations and write a final paper about their research project.

RATIONALE FOR NEW COURSE:

- Why is there a need for this course at this time?** As part of our redesign of the Biological Sciences curriculum, we will allow BIOL BS students (but not BA students, because they are only required to take one upper-level lab) to use independent research in the laboratory of a faculty member as a substitute for one of the two upper level laboratory classes (BIOL 3XXL) they must take after they have completed the BIOL core laboratory course (BIOL 300L). Students choosing this option must take BIOL 499 (Independent Research) for two semesters, and in the second semester they must register for BIOL 499L as well. In this one-credit seminar students will give oral presentations about their research and write a final paper about their work. This will enhance the basic communication skills of our students, as well as expose them to the research conducted by their peers.
- How often is the course likely to be taught?** Every Spring semester
- How does this course fit in with your department's curriculum?** See above.
- What primary student population will the course serve?** BIOL BS majors
- Why is the course offered at the level chosen?** This course is associated with the existing course BIOL499, so is at the same level.
- Explain the appropriateness of the prerequisites.** In order to use independent research in the lab of a faculty member as a substitute for a required laboratory course for the BIOL BS degree, we determined that two semesters of lab work would be required, hence students must register for BIOL499 two semesters in a row, and take BIOL 499L in the second.

- g) **Explain the appropriateness of the P/F or regular grading method.** Students will be judged on their oral presentation skills, their writing skills, and their class participation, so the regular grading method is appropriate.
- h) **Provide a justification for the repeatability of the course:** N/A

Cross listed courses: none

ATTACH COURSE OUTLINE (mandatory): Attached.

Outline BIOL 499L: Undergraduate Research Seminar: This one-credit course will meet once a week. During these sessions, students will give oral presentations about the independent research they are conducting in a faculty member's laboratory. The number of presentations a student gives will depend on enrollment in the course, but we expect at minimum two presentations throughout the semester: a 'background' presentation about the topic and the mentor laboratory's research, and a 'research' presentation about their project, the methods they will use, any results they obtain, and their interpretation of those results. Students will be judged on their oral presentations, as well as their in-class participation and questioning of the presenter. At the conclusion of the semester the students will write a 15-20 page paper covering the background to the research, their project, methods, results and conclusions. This final paper will involve at least one round of comments from the research advisor and the instructor and revision by the student, to familiarize students with writing within the scientific discipline.

Learning Objectives: The goals of this seminar are:

- 1) to increase the oral presentation and communication skills of BIOL BS majors, to help them become comfortable speaking in front of an audience about their scientific work, and to give them practice preparing a presentation for an audience that is not expert in their field of research (unlike the members of the laboratory in which they work)
- 2) to increase the written communication skills of BIOL BS majors by requiring them to write a final report on their undergraduate research project, in particular giving them an experience in 'writing in the discipline'
- 3) to encourage students to understand the scientific background and context of the work they are performing in a faculty member's laboratory, and to understand the fundamentals of the methods they are using in that research
- 4) to encourage students to critically think and evaluate their results, both their successes and failures, and to consider their results in the context of the overall field and how they have contributed to moving our understanding forward