

PLNU Biology MA/MS program

	Narrative Response
An environment that provides support for inquiry, scholarship, research, and/or professional practice.	All of the courses in the program are taught by a full-time PLNU professor actively involved in either biology or biology education research. By interacting with these faculty members, the students are immersed in an environment reflecting the importance of and results of research. In addition, many of the required courses expect students to either present, facilitate discussions of, or analyze in writing scholarly papers (PLO #3)
Expectation for student scholarship, evidence-based practice, and/or independent research, and engagement with faculty.	Each graduate student completes a pilot study on some aspect of biology education - this is an original research project (1 unit) that the student designs, carries out, analyzes, and presents with minimal faculty assistance (PLO#3). Approximately 25% of the students continue on to do research with a faculty member in the form of a thesis project (6 units), including the submission of a manuscript to a journal. Thesis students are encouraged to present their thesis work at a conference.
Out of class learning from mentors, campus speakers, colloquia, practicum experiences, conference participation, and the opportunity to share scholarship	As an elective (BIO 682), some students attend PLNU's monthly Perspectives of Science seminar series that features leading scientists from a variety of science fields, and read, then discuss papers by the speaker. All students are invited to attend thesis defenses when others in the program present their thesis work. Many students complete internships at community colleges where they work with students in a biology lab setting. Some students attend science education conferences. All students complete their own small research project and present it to the other students in the course (PLO#2 and PLO#3)
Exposure to the values, skills, attitudes and essential content knowledge of the discipline or profession.	All students take at least four biology-content summer classes (BIO 660-668) typically taught by researchers in that area of biology. These courses are application-based, yet also provide an opportunity to learn the major theories as well as standard laboratory techniques in each sub-discipline of biology (PLO#1). Many students complete internships at community colleges where they work alongside biology professors to learn about teaching at the college level.
Collaboration between students and faculty and between students and professionals in the field.	All students take courses taught by researchers working in that particular area of biology or biology education. These courses are application-based and also provide an opportunity to learn the major theories as well as laboratory techniques in each sub-discipline of biology. Approximately 25% of the students do research with a faculty member to complete a thesis project (6 units).
Opportunity for advancement in knowledge, professional skills, and values.	All students take BIO 633 (History & Philosophy of Science) that provides an opportunity to gain a broader understanding of how science relates to other disciplines, as well as how science has developed as a discipline. In BIO 660-668, students learn biology concepts and laboratory techniques related to all of the subtopics in the broader field of biology (PLO#1). Upon completion of either the MA in biology or the MS in biology, all students are qualified to teach biology courses at the community college level. Since many of the graduate students are currently middle or high school teachers, this degree allows them to either teach dual-enrollment courses at their current school site, or to teach traditional community college courses in the evenings, weekends, or summers if
Fosters students' active engagement with the literature of the field and create a culture that promotes the importance of scholarship and/or professional practice.	In each of the required courses in the program, students read, summarize, and critique primary literature. In the research design course (BIO 643), they read several articles, then write a literature review prior to conducting their own pilot study (PLO#3) in BIO 682. Students choosing to complete a thesis write a greatly expanded literature review. In the biology-content courses (BIO 660-668), students read, summarize and critique primary literature, and in most courses, do presentations based on the articles.
Builds a community of scholars searching for new knowledge and quest for higher learning.	All students complete a pilot study, then present their research to the other students in BIO 682 (pilot study). The students provide feedback on the data collection, data analysis and conclusions, and since other students are working on related topics, they are both contributing to, and learning from each other in order to produce more sophisticated and valuable research. The program is not a cohort model, so students are in classes with other students at all stages of the program (1 yr, 2 yr, some 3 yr.). This provides opportunities for a great deal of sharing of experiences, and encouragement to those new in the program. In addition, professors in most of the courses are able to share relevant research that they are conducting.
Expects candidates to explore diverse ideas and think critically about their own values and perspectives.	In the required History & Philosophy of Science course (BIO 633), students discuss their personal perspectives on the creation /evolution issue (PLO#4). In both the Research Methods course (BIO 643) and the Pilot Study course (BIO 682), the students consider and discuss ethical issues surrounding data collection, data analysis, and making claims about data.
Champions infusion of diversity experiences, cross-cultural elements, and diverse perspectives in the graduate curriculum	In the required History & Philosophy of Science course (BIO 633), students read and discuss the contributions of various cultures to current scientific thought, as well as various perspectives on creation and evolution.
Insists candidates take an active role in learning and assume a large share of the responsibility for their learning.	All of the required courses in the program require a level of reading and writing far above the expectations for a typical upper division course. Students read, study and synthesize information on their own or in small groups of their choosing. Students do presentations in many courses. There is very little lecturing in any of the required courses, rather, students are expected to come prepared for class and ready to participate in discussions about the material with students and the professor.
Other:	
A baccalaureate degree is required for admission to a graduate program.	Yes
Sufficient number of faculty members to exert collective responsibility for the development and evaluation of the curricula, academic policies, and mentoring of students.	3 full-time faculty members (program director and 2 others) are directly involved in revising learning outcomes, academic policies, and mentoring students and 4 additional full-time faculty members regularly teach courses in the program.
Clearly stated objectives differentiated from and more advanced than undergraduate programs in terms of admissions, curricula, standards of performance, and student learning outcomes.	Evidence of a BA or BS, a 3.0 GPA, unless admitted under exception, adequate performance on the Major Field Test in Biology, two letters of recommendation, and a writing sample are all required for admission. Only 2 "C" grades are allowed in the program, and students must maintain a 3.0 GPA while in the program. All of the courses require substantially more reading and writing than the undergraduate program, and there are no undergraduate students in any of the graduate courses.