

MATHEMATICS DEPARTMENTAL HONORS PROGRAM POLICY STATEMENT

1. STATEMENT OF PURPOSE:

The purpose of the Mathematics Departmental Honors Program is to provide advanced undergraduate students with a research experience in pure mathematics, statistics, applied mathematics, history of mathematics, or mathematics education.

2. COURSE AND CREDIT STRUCTURE:

A student in this program must enroll in MATH/HNRS 489 (Honors Independent Study) and MATH/HNRS 499 (Honors Senior Thesis) in different semesters for at most 3 credits each.

3. ELIGIBILITY:

The minimum eligibility requirements for MATH/HNRS 489 are

- (a) completion of MATH 310, 311, 322 and one mathematics major course numbered above 322,
- (b) an overall Millersville GPA of 3.00 or higher,
- (c) a Millersville MATH GPA of 3.35 or higher, and
- (d) the recommendation of a tenured/tenure-track mathematics faculty member who is willing to act as a project supervisor and thesis advisor.

4. PERMISSIBLE TYPES OF ACTIVITIES include:

- (a) original research results in an area of pure mathematics, statistics, applied mathematics, history of mathematics, or mathematics education;
- (b) creative exposition of material from one of the above five areas not covered in a regular MATH Dept. course offering;
- (c) creative mathematical modeling for the solution of a real-world problem of substantial complexity.

The student's work must include a written thesis acceptable to the departmental honors committee and conclude with a public presentation of the results.

5. FACULTY SUPERVISION:

The quality and integrity of the program will be assured by faculty supervision in the following ways:

- (a) A student wishing to participate in the program must obtain the support of a tenured/tenure-track faculty member who is willing to act as his/her project supervisor.
- (b) The student's project supervisor will
 - (1) assist in preparing and submitting the appropriate application materials to the departmental honors committee;

- (2) advise the student in selecting a topic and preparing a plan of study for MATH/HNRS 489, meet regularly with the student over the duration of the project, provide appropriate direction as needed, and assign a grade in MATH/HNRS 489;
 - (3) act as the student's thesis advisor in MATH/HNRS 499, and chair of his/her thesis committee;
 - (4) act as liaison between the student, his/her thesis committee, and the departmental honors committee.
- (c) The thesis committee will consist of the project supervisor and two or more additional persons nominated by the student and the project supervisor, and approved by the departmental honors committee. If the student is fulfilling the requirements of the University Honors College, the thesis committee must include a present or past member of the University Honors Committee.
- (d) The departmental honors committee will oversee all aspects of the departmental honors program, subject to review by the department. This committee will consist of 3 to 5 department faculty members elected annually by the department.

6. APPLICATION PROCEDURE AND APPROVAL PROCESS:

- (a) A student wishing to participate in the departmental honors program may discuss the program with any faculty member of the department. The first step is to find a tenured/tenure-track faculty member willing to act as his/her project supervisor. Together, they select and propose a topic for approval by the departmental honors committee. (In some cases, such as inter-departmental projects, there may be more than one project supervisor.)
- (b) The student, together with his/her faculty advisor and proposed project supervisor(s), will complete the "Application to take MATH/HNRS 489" and submit it to the chair of the departmental honors committee who will retain one copy and place another copy on file in the mathematics department office. This must be done at least two semesters in advance of the student's anticipated graduation.
- (c) Once the MATH/HNRS 489 project has been approved, the project supervisor oversees the student's work and assigns the final grade in MATH/HNRS 489.
- (d) To continue in the program and into MATH/HNRS 499, the student must earn a grade of B or higher in MATH/HNRS 489 and be recommended by the project supervisor.
- (e) A change in project supervisor may occur only with the approval of the departmental honors committee and notification of the department chair and the college dean.

7. THESIS REGULATIONS, DEFENSE, EVALUATION:

- (a) The thesis shall be a formal written presentation of the student's results, conforming to a standard thesis format acceptable to the departmental honors committee.
- (b) It shall contain
 - (1) statement of purpose;
 - (2) appropriate background/ literature review
 - (3) methodology, complete exposition of results, and how they were obtained;
 - (4) conclusions;
 - (5) references

- (c) A draft of the thesis shall be given to the thesis committee members no later than three weeks prior to the student's defense date. Committee members shall return the draft, with comments, to the student no later than two weeks after receiving it.
- (d) A revised copy of the thesis shall be given to all thesis committee members no later than two days prior to the oral defense.
- (e) The oral defense of the thesis shall occur no later than one week prior to the day of graduation. Exceptions may be granted with the approval of the thesis committee and the student. The date of this defense shall be set and made public no later than one week prior to the defense date. All thesis committee members shall receive written notice of the date, time, and location of the defense. The thesis supervisor shall publicly advertise the defense.
- (f) At the conclusion of the defense, the thesis committee shall determine whether the thesis satisfies the requirements for departmental honors. A satisfactory thesis will be signed by all committee members. A grade of B or higher will be required for Departmental Honors.
- (g) The student is responsible for providing three bound copies of the thesis in final form to the thesis advisor who will retain one copy and deliver a second copy to the department office and the third copy to Millersville University library.

8. EVALUATION, AND FINAL GRADE REQUIREMENTS:

To be awarded Departmental Honors in Mathematics at graduation, the student must have achieved:

- (a) a grade of B or higher in both MATH/HNRS 489 and MATH/HNRS 499;
- (b) an overall Millersville GPA of 3.00 or higher;
- (c) a Millersville MATH GPA of 3.35 or higher.

RATIONALE for Advanced Writing Requirement Credit:

The advanced writing requirement is an essential component of the Millersville University General Education program. Approved courses in this category require the student to demonstrate a high level of writing skill and maturity by producing one or more significant pieces of writing. A departmental honors thesis in mathematics meets this requirement for the following reasons:

1. A thesis requires careful organization of material
2. Standard documentation and style conventions are strictly observed in mathematics honors theses
3. Mathematical writing requires extreme care and precision
4. A faculty member (thesis advisor) oversees the writing process
5. The writing phase of a thesis project typically requires a significant portion of the final thesis semester
6. The final product is defended before a panel of expert faculty who scrutinize the mathematical content as well as the prose.

Producing a departmental honors thesis in mathematics requires a high level of attention to writing, thereby fulfilling the objectives of the General Education advanced writing requirement. Consequently, awarding advanced writing credit for successfully defended departmental honors theses in mathematics is justified.