

**UNDERGRADUATE NEW COURSE  
GENERAL EDUCATION**

**Proposal for a New Course, General Education**

Department MACS Submission Date April 2013

Semester of Implementation Fall 2014

I. New Proposed Course Information

Discipline Prefix Math

Course Number 150

Course Title Math And

Credit Hours 3

Prerequisites  Yes  No If yes, \_\_\_\_\_

Speaking Intensive  Yes  No If yes, attach a copy of the department speaking intensive policy.

Writing Intensive  Yes  No

If Cross-Listed:

Secondary Prefix \_\_\_\_\_

Course Number \_\_\_\_\_

Course Description (***Must match description on course syllabus.***)

**Math 150.** *Math And* An in depth study of the practice of mathematics in a specific application area such as baseball, voting, finance, or architecture. Both algebraic and geometric applications in the chosen area will be covered. Historical topics will also be considered. 3 credits \*Fulfills General Education Goal 5.

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General Education Goal(s) for which course is designed: Goal 5 \_\_\_\_\_

**Attach a proposed syllabus in Longwood format.** The syllabus, or an attachment, should indicate in some detail how the course will satisfy each of the required nine (9) General Education Course Criteria (page 11).

II. Required for Major, Minor, Concentration (please specify):

  No    
\_\_\_\_\_

III. Rationale for Course:

  There are two kinds of general education mathematics courses. There are those courses where the student is looking to gain familiarity with certain material that they need. Then there are those courses that give the student familiarity with certain kinds of mathematical applications that they might enjoy using, while giving them a background in mathematical modeling through this example. In other words they do not need to learn a specific model or family of models, just to know what modeling is. In this case there are many possible topics to cover. This course will give our students and our faculty the chance to cover many more of them, keeping things interesting for both the students and faculty.

IV. Resource Assessment:

A. How frequently do you anticipate offering this course?

Several sections per semester – this course will replace Math 131   

B. Describe anticipated staffing for the course including any changes in existing faculty assignments:

Same as currently necessary for Math 131   

C. Estimate the cost of required new equipment:

None   

D. Estimate the cost of and describe additional library resources:

None   

E. Will this course require additional computer use, hardware or software?

Yes  No If yes, please describe and estimate cost:

\_\_\_\_\_

F. Will a course fee be assessed?  Yes  No If yes, the Fee Recommendation Worksheet must accompany this form. It is found at the following url: [www.longwood.edu/budget](http://www.longwood.edu/budget). (See Appendix B for sample of form.)

**SIGNATURE PAGE**  
**UNDERGRADUATE NEW COURSE**  
**GENERAL EDUCATION**

Course Name/Number Math 150\_ Course Title\_ Math And \_\_\_\_\_

V. Approvals

	Date Received	Date Approved	Signature
1. Department Curriculum Committee Chair	_____	_____	_____
2. Department Chair	_____	_____	_____
The Department Chairs, whose programs may be affected, have been notified:			
Department	_____	Date Notified	_____
Department	_____	Date Notified	_____
Department	_____	Date Notified	_____
3. College Dean	_____	_____	_____
4. College Curriculum Committee	_____	_____	_____
5. General Education Committee	_____	_____	_____
6. Educational Policy Committee	_____	_____	_____
7. Faculty Senate Chair	_____	_____	_____
8. Date received by Registrar	_____		

**All curriculum proposals/changes are processed in the date order received. In order to be included in the next academic year's catalog, all paperwork must be submitted no later than:**

**December 15<sup>th</sup> to the College Curriculum Committee**

**February 1<sup>st</sup> to the General Education Committee**

**March 1<sup>st</sup> to the Educational Policy Committee (EPC)**

**Submission within the deadlines does not guarantee processing in time for the next**

## General Education Course Criteria

**1. Teach a disciplinary mode of inquiry (e.g., literary analysis, statistical analysis, historical interpretation, philosophical reasoning, aesthetic judgment, the scientific method) and provide students with practice in applying their disciplinary mode of inquiry, critical thinking, or problem solving strategies.**

This course will concentrate on various mathematical methods used in modeling a particular family of applications. Students will learn how applied mathematicians think in a context the students understand. They will use the modeling methods they learn to create their own models.

**2. Provide examples of how disciplinary knowledge changes through creative applications of the chosen mode of inquiry.**

That will be covered in the historical context given in the class, in which the student will learn how mathematics came to be used in these applications and how the math and the applications changed as a result.

**3. Consider questions of ethical values.**

Ethics is difficult to cover in pure math but easy in applications. All mathematical applications come with built in ethical difficulties. Since the primary focus of this class is doing mathematics, the ethical issues will not be a main focus, but they will be discussed.

**4. Explore past, current, and future implications (e.g., social, political, economic, psychological or philosophical) of disciplinary knowledge.**

Mathematical modeling by its nature concentrates on using models to make predictions for the future using the information gathered from the past.

**5. Encourage consideration of course content from diverse perspectives.**

Diversity is difficult to cover in mathematics where there is a right and wrong answer. However modeling comes with a variety of points of view that are involved in determining which input variables are important.

**6. Provide opportunities for students to increase information literacy through contemporary techniques of gathering, manipulating, and analyzing information and data.**

Many of these classes will involve descriptive statistics. All will involve using real world data in models.

**7. Require at least one substantive written paper, oral report, or course journal and also require students to articulate information or ideas in their own words on tests and exams.**

As with all Goal 5 courses in the department, this course will require a written project.

**8. Foster awareness of the common elements among disciplines and the interconnectedness of disciplines.**

The nature of the course requires looking at how mathematics is used outside of mathematics.

**9. Provide a rationale as to why knowledge of this discipline is important to the development of an educated citizen .**

The nature of this course requires looking at how mathematics is used in the real world. No matter what the specific application, students will realize that math is all around them.