

**Mathematics  
Department**

Notre Dame, Indiana 46556-5683

**UNIVERSITY OF NOTRE  
DAME**

Phone: 219-631-7245  
FAX: 219-631-6579

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*Math. 103 - Processes of Mathematical Thought  
Spring Semester, 2000*

**Instructor:** Prof. Mario Borelli

**Office** The instructor has two:

Room 302, Math. Bldg. Tel. 631-7334 (**very rarely here**)

Room 236, Security Bldg. Tel. 631-7514 (**here almost all of the time**)

**Course Prerequisites:** a working knowledge of High School algebra, curiosity about mathematics, **interest in the topics considered**. The course is designed strictly for the non specialist. Consequently, participation in class discussion, the asking of questions, the proffering of suggestions **is required**. What will NOT be tolerated is the passive attitude "here I am, teach me!", an attitude which especially affects upperclass students. **LEARNING IS NOT A SPECTATOR SPORT!**

**Course Description.** Challenging situations often confront us which require thought before proceeding. This generally involves *an analysis of the situation, seeking to understand precisely all relevant factors involved, then a development of strategies dealing with the situation, and finally, whenever possible, the selection of one strategy which will resolve the situation to our satisfaction*. The words in italics accurately describe mathematical thought, and provide a blueprint for the conduct of the course.

Challenges, such as commercial games, logical puzzles, consensus within diversity, the making of Christmas ornaments, governmental economic planning, the theory of democracy etc., will be introduced. In most instances, the computer will be used for simulation and experimentation. With the guidance of the instructor, those strategies, techniques and technical results which may be relevant to the desired solution will be introduced. Finally that strategy or strategies, if there be any, which "solve the challenge to our satisfaction" will be applied and shown to work.

For most students learning is enhanced by the exchange and discussion of ideas. Therefore I intend to require that students organize themselves in "**teams**" of exactly three members each. The word "team", in this class, therefore means a group of three or fewer students. Only one team will be allowed to have less than three members) To keep the organization orderly, on next Wednesday, January 24 **each student will return to me the "Team Organization Form" attached herewith, (the last page) with all items appropriately filled.**

**Homework.** Various reports on each team's findings will constitute the **homework**, which **will receive the same grade for each member of the team**. **Homework is collected on the due date, as stated in the course's WEB page whose URL address is:**

**<http://www.nd.edu/~mario/classes/math103/>**

**Exams:** There will be three class exams, and the final examination. The schedule of the class exams is:

|                    |                |                |
|--------------------|----------------|----------------|
| Wedn., February 21 | Mon., March 26 | Mon., April 23 |
|--------------------|----------------|----------------|

The final examination will be held at the regularly scheduled time and day.

The instructor reserves his right to give unannounced quizzes.

**Attendance.** Attendance will be taken at every class session. University regulations give the instructor authority to exact a grade penalty if a student accumulates an excessive amount (**defined in this class as more than four**) unexcused absences. (*This means you have to learn to get up on time.*)

Since it's no fun to get up early in the morning and slush all the way to DeBartolo only to find out that the class has been cancelled, I will try my best to inform you about classes I have to cancel (due to some travel I may have to do) in a timely manner.

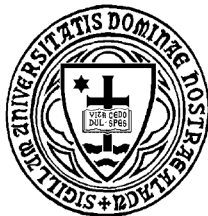
**The Honor Code.** In the homework the instructor allows, and indeed encourages, cooperation and sharing of learning, both among an individual team's members and among different teams. The instructor requires only that credit be given in the homework to those team members or other teams which have contributed ideas or help. Treat the homework as a professional effort. Class quizzes and exams will be conducted under the University's Honor Code, so that in these latter works a student's efforts must be strictly his/her own. Attendance will also be taken on the Honor Code. (*This means you cannot sign in for somebody else.*)

|                 |                     |            |
|-----------------|---------------------|------------|
| <b>Grading:</b> | Class Participation | 5%         |
|                 | Homework            | 10%        |
|                 | Exams and Quizzes   | 60%        |
|                 | <u>Final Exam</u>   | <u>25%</u> |
|                 | TOTAL               | 100%       |

**Letter Grades.** The instructor will not know until the end of the semester which numerical scores correspond to which letter grades, so please don't ask him. Two facts are certain: the course will not be graded on a curve and if your scores amount to 55% or more of the total, you will pass the course (*maybe with a D, but definitely pass.*)

**Office Hours:** Tuesday, Thursday 8:30 - 10:30 - Rm 236, Security Bldg.

*(or by appointment, at any time mutually convenient. The instructor will be available most days in Room 236, Security Building. The secretary's name there is Mary, call her at 1-7514 and make an appointment.)*



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**SPRING 2001**

**TEAM ORGANIZATION FORM**

**RETURN THIS FORM ON WEDNESDAY, JANUARY 24**

Prof. Borelli,

I belong to a team which consists of myself and (PRINT full names, first and last)

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MY NAME IS \_\_\_\_\_  
(PRINT)