Mathematics 120
Introduction to Pure Mathematics
SYLLABUS
Spring, 2003

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Course Goals: Math120 is an introductory course to mathematics and mathematical thoughts through a variety of topics and activities.

In the course, we will explore and study some of the greatest ideas of humankind. Jewels in mathematics will be presented for the students to understand and appreciate with their minds and emotions. Mathematical thinking and reasoning will be introduced. Students will also experience doing mathematics by investigating, exploring and discussing several nontrivial problems which are within their reach.

The overriding spirit of the course is a non-threatening, pleasant and cheerful one. The theme of the course is to gain an appreciation for mathematics, to discover the power of thinking and reasoning in everyday life, to get glimpses of some rich and deep mathematical wonders, and to acquire and master practical mathematical skills.

The prerequisite is by placement or a passing grade on Math100C.

Course Resources:

- Handouts will be given throughout the course
- Supplementary material:
  Flatland: A romance of many dimensions, by Edwin A. Abbott
  From Zero to Infinity—What makes numbers interesting, by Constance Reid
- Learnlink Conference: A Learnlink class conference for this course has been created and named Math120Chen. Students are responsible to check the conference regularly for information, announcements and discussions. Students are strongly encouraged to participate in the conference. Please make the conference appear on your Learnlink desktop, so that you will be promptly aware of any new messages.

Course Content: The content of the course might include but will not be limited to the following: logic puzzles, games and paradoxes; introduction to numbers, sums and mathematical induction; numerical systems; topics in geometry and the ideas about infinity.

Classes*:* Students are expected to attend all classes and are responsible for all material covered in class as well as any changes made in the schedule regarding homework, problem sets and other dates. Class attendance and consistent preparation for class will determine the success or failure the student realizes in this course. Students are expected to participate actively in class discussions. Class participation is worth 10% of the final grade. Missing more than three classes without legitimate reasons will result in losing this portion of the final grade.

Homework: A homework assignment is due at the end of almost every class. Each assignment is graded on a 10 point scale. A student receives 6 points if he or she has attempted every question. Selected problems from the homework will be checked and clarity and correctness both influence the grading. For exceptional solutions and ideas, extra points might be rewarded. The student must be present in class to turn in the homework. Late homework will not be accepted. Collaboration is allowed and encouraged. Working in groups can be an effective learning tactic. However, each student must write his or her own solutions.

Journal: Every student is required to keep a journal throughout the course. One is expected to make at least one entry in the journal every week. Each entry must be dated. Sometimes specific topics might be assigned, otherwise a student is free to choose what to write as long as it is related to the course. Typically, a student may reflect on the mathematics and ideas learned, explore other thoughts and possibilities. One may also record the "Aha! Moments", or the "epiphanies." A student is encouraged to raise questions, to critique and express independent views on the ideas, topics, surprises and curiosities in mathematics, as long as his or her viewpoints are supported by reasonable arguments.

The goal of the journal is to allow the students to reflect upon their intellectual journey through mathematics at a broader and more personal level.

Problem sets: Five sets (worth 50 points each) of more involved problems will be handed out. Usually two weeks will be allowed for completion of the problems. Students should begin the problem sets on their own, but they may collaborate with each other. A student may collaborate only with other students currently taking this course. He or she may not seek help from tutors, other professors or anyone else not enrolled in this course. The final written solutions must be in the student's own words. Style and reasoning will be important factors in grading.

Tests: Two tests will be given in the course:

Test 1: Friday, February 28, 2:15 – 4 p.m. Language 107
Test 2: Friday, March 28, 2:15 – 4 p.m. Language 107

Further instructions will be given at each test. The student is expected to take both tests at the scheduled times. Excuses deemed legitimate by the instructor will be handled according to the individual circumstances. For legitimate excuses arrangements will be made to take a test **prior to** the testing time. **There will be no make-up tests given after the test time.**

Students with disability concerns verified by the Disability Services at the University should approach the instructor as early as possible in the semester to ensure proper accommodations.

Term Project: A term project will be assigned in April for which the students are given about four weeks to complete on a selected topic related to the course. Presentations of the project will be on the final exam day. Details will be provided at the time of the assignment.

Written Style: Thoughts are expressed by sentences. Your written work must in complete sentences. Your work should be neat, orderly and legible.

HONOR CODE: THE HONOR CODE OF OXFORD COLLEGE APPLIES TO ALL WORK SUBMITTED FOR CREDIT. ALL SUCH WORK WILL BE PLEDGED TO BE YOURS AND YOURS ALONE. THIS IS THE CASE WHEN YOU PLACE YOUR NAME ON WORK SUBMITTED.

Grading:

Class participation	10%
Homework(almost every class day)	18%
Journal	12%
Problem sets (5 sets @ 50 points each)	25%
Tests (2 tests @ 100 points each)	20%
Term Project	15%

The following scale will be used to assign letter grades:

A:	90% – 100%
B:	80% – 89%
C:	70% - 79%
D:	60% - 69%
F:	Below 60%

Grades of A-, B+, B-, C+, C-, D+ may be assigned for percentages near the cutoffs.

How to succeed?
The main suggestion to a student is to **keep an open and curious mind, and be willing to work:**

- Prepare for and attend the lectures, participate in class discussions.
- Spend some time in studying the course every day and take the homework seriously.
- Start problem sets early and keep thinking on the problems.
- Keep a good journal.
- Form study groups.
- Ask questions. (Learnlink Conference)
- Review before the tests, and reflect after the tests.