

## MATH 100 – Introduction to the Profession

**Time and Location:** 11:25am--12:40pm TR, Location E1 122 or E1 029

**Instructor:** Greg Fasshauer

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**Office hours:** TR: 2:00pm--3:00pm, also by appointment

**Textbooks:** Timothy Gowers, *Mathematics: A Very Short Introduction*, Oxford University Press (2002), ISBN 0-19-285361-9;

Keith Devlin, *Sets, Functions, and Logic: An Introduction to Abstract Mathematics, Third Edition* (2003), ISBN: 1584884495.

**Other required material:** Cleve Moler, *Experiments with MATLAB*,  
<http://www.mathworks.com/moler/exm/chapters.html>

**Prerequisites:** None

### Objectives:

1. Students will learn about real world applications and careers for applied mathematicians.
2. Students will know the curricula the department offers, including the required courses and different specializations.
3. Students will get a taste of different areas of mathematics via examples and experiments using MATLAB, including analysis, discrete mathematics, computational mathematics and stochastics.
4. Students will understand the role of proof and conjecture in mathematics.
5. Students will understand the different nature of “results” in various areas of pure and applied mathematics, such as: surprising truths, good definitions, estimates and approximation, good models, provably good algorithms, effective heuristics, inference (statistics).

### Course Outline:

	Hours
1. An Introduction to Mathematics and Careers as a Mathematician	8
2. MATLAB	8
3. Logic, proofs, and certain other fundamentals	8
4. Resources at IIT: Career Management Center, Galvin Library and the ARC	1
5. Topics:	
a. Discrete Applied Mathematics.	4
b. Applied Analysis	4
c. Computational Mathematics	4
d. Stochastics	4

<b>Assessment:</b>	Class participation (including reading and attendance)	30%
	Homework & MATLAB labs	40%
	Group Project (Mon., Dec.3, 10:30-12:30)	30%

**Homework:** There will be frequent homework assignments in the form of written reports or MATLAB experiments. While I do encourage study groups and team learning, I expect that homework solutions are written up by each person **individually**. **Duplicate solutions** will be considered evidence of academic dishonesty. MATLAB assignments may be completed in teams of up to 3 students.

**Projects:** Group project ideas will be suggested by faculty members near the beginning of the semester. If a group of students wants to propose their own project, then it needs to be approved by a faculty member. Most projects will include a presentation, and a computer program (probably, but not necessarily using MATLAB). Presentations will be given during finals week, during our reserved slot for the final exam. Groups will be graded both on the final project itself as well as by whether or not they adequately meet certain deadlines:

8<sup>th</sup> week: midterm report, content and format determined by the faculty adviser of the project.

Discussion of project with the faculty adviser in mid-late November – all group members should be capable to discuss what has been written up so far.

Reasonable accommodations will be made for students with documented disabilities. In order to receive accommodations, students must obtain a letter of accommodation from the Center for Disability Resources and make an appointment to speak with me as soon as possible. The Center for Disability Resources is located in the Life Sciences Building, room 218, 312-567-5744 or [disabilities@iit.edu](mailto:disabilities@iit.edu).