Math 245: Discrete Mathematics

Discrete Mathematics
Initial Meeting, Fall 2006
Lecture #1

Peter Blomgren
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San Diego, CA 92182-7720
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Math 245 — Add Codes / Crashers / Class Capacity

<table>
<thead>
<tr>
<th>Capacity:</th>
<th>40 students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enrolled:</td>
<td>40 students</td>
</tr>
<tr>
<td>Available Add Codes:</td>
<td>0*</td>
</tr>
</tbody>
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Due to fire regulations, 40 students is the hard limit.

* See Peter before/after class to get add codes (or get on a wait-list for add-codes).

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Basic Information: The Professor

- August 2002 – Present: Assistant Professor, San Diego State University, Department of Mathematics and Statistics.
- 1998 – 2002: Research Associate, Stanford University, Department of Mathematics. Main Focus: Time Reversal and Imaging in Random Media (with George Papanicolaou, et. al.)

“If we knew what it was we were doing, it would not be called research, would it?”
(Albert Einstein)

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Math 245: Note Taking

Class notes (the slides) will be posted on the class website. — That way the class does not become a note-taking contest.

It is recommended that you take additional notes, regarding additional explanations, discussions, and examples done in class (on the board).

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Basic Information: The Professor

<table>
<thead>
<tr>
<th>Office</th>
<th>GMCS-587</th>
</tr>
</thead>
<tbody>
<tr>
<td>Email</td>
<td><a href="mailto:blomgren@mail.SDSU.EDU">blomgren@mail.SDSU.EDU</a></td>
</tr>
<tr>
<td>Web</td>
<td><a href="http://terminus.sdsu.edu/SDSU/Math245_f2006/">http://terminus.sdsu.edu/SDSU/Math245_f2006/</a></td>
</tr>
<tr>
<td>Phone</td>
<td>(619)594-2602</td>
</tr>
<tr>
<td>Office Hours</td>
<td>TuTh: 3:30p – 5:15p + More TBA and by appointment</td>
</tr>
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Basic Information: The Book

Title: “Discrete Mathematics with Applications,” 3rd Edition

Author: Susanna S. Epp

Publisher: Brooks/Cole (Thomson Learning)

ISBN: 0-534-35945-0

Basic Information: Syllabus

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Title</th>
<th>Notes</th>
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<tbody>
<tr>
<td>1</td>
<td>Logic of Compound Statements</td>
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</tr>
<tr>
<td>2</td>
<td>Logic of Quantified Statements</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Logic of Elementary Number Theory and Methods of Proof</td>
<td>Midterm #1</td>
</tr>
<tr>
<td>4</td>
<td>Sequences and Mathematical Induction</td>
<td>10/10/2006</td>
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<tr>
<td>5</td>
<td>Set Theory</td>
<td>Midterm #2</td>
</tr>
<tr>
<td>7</td>
<td>Functions</td>
<td>Cumulative</td>
</tr>
<tr>
<td>8</td>
<td>Recursion</td>
<td>Final</td>
</tr>
<tr>
<td>10</td>
<td>Relations</td>
<td>12/12/2006</td>
</tr>
</tbody>
</table>

See also detailed handout.

Basic Information: Grading

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<table>
<thead>
<tr>
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<tbody>
<tr>
<td>Homework*</td>
<td>25%</td>
</tr>
<tr>
<td>Midterm #1</td>
<td>25%</td>
</tr>
<tr>
<td>Midterm #2</td>
<td>25%</td>
</tr>
<tr>
<td>Final</td>
<td>25%</td>
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Extra credit assignments may be available.

* Due (almost) every Friday at Noon in GMCS-587 (Peter's office).
**Expectations/Procedures, I**

- Some, but not all, class attendance is OPTIONAL — Homework, projects, tests, and announcements will be posted on the class web page.
- Unfortunately, the exams are REQUIRED. Any required attendance beyond the exams will be posted on the class web page.
- If you choose to attend optional classes:
  - Please be on time.
  - Please pay attention.
  - Please **turn off mobile phones**.
- Please be courteous to other students and the instructor.
- Abide by university statutes, and all applicable local, state, and federal laws.

**Math 245 — Goals**

Goal #1 To teach the essential language and reasoning of mathematics — clarity and precision in definitions and statements of fact, and rigorous methods for establishing that a statement is true.

Goal #2 To teach the basics of set theory, logic, combinatorics and graph theory.

In a way, this is a **language class**. Mathematicians use (English) words in a very precise way to convey very precise statements about mathematical properties. Even the common “or” tends to ‘behave’ differently in mathematics:

**Question:** Do you want vanilla **or** chocolate?

**Expected:** Chocolate. (Statement of preference)

**Mathematician:** Yes. (Statement of truth)

**Expectations/Procedures, II**

- Turn in assignments on time. (The instructor reserves the right not to accept late assignments.)
- The instructor will make special arrangements for students with documented learning disabilities and will try to make accommodations for other unforeseen circumstances, e.g. illness, personal/family crises, etc. in a way that is fair to all students enrolled in the class. **Please contact the instructor EARLY regarding special circumstances.**
- You are expected **and encouraged** to ask questions in class!
- Students are expected **and encouraged** to make use of office hours! If you cannot make it to the scheduled office hours: contact the instructor to schedule an appointment!
- **Academic honesty** submit your own work — but feel free to discuss ideas with other students in the class!

**Questions, Comments, Administrative Stuff...**

**Formal Prerequisites:** Math 121 or Math 150.

**September 18** Last day to add classes, drop classes, or change grading basis. No schedule adjustments allowed after 6:00 p.m. on this date.

**December 12** Final Exam (Tuesday 1pm–3pm).

**Questions?**