Math 355 - 35203 - Discrete Mathematics (3)
Syllabus - OSU - Winter 2018

Instructor: Filix Maisch
                          e-mail: maischf@math.oregonstate.edu
Meetings: MWF 2 − 2 : 50 PM  Room: STAG 212
Office Hours: KIDD 348, MW 3 : 30 - 4 : 30 PM  MSLC Hours: F 10 − 10 : 50 AM
Required Text: A Discrete Transition To Advanced Mathematics, by Bettina Richmond, Thomas Richmond.
Web: people.oregonstate.edu/∼maischf/
Attendance: Regular attendance will be expected.
Honor Code: Students are expected to be familiar with Oregon State University’s Student Conduct Code. Please review this statement at the following web link (you will have to type-in the underscores):
http://studentlife.oregonstate.edu/sites/studentlife.oregonstate.edu/files/code_of_student_conduct.pdf

Statement Regarding Students with Disabilities: Accommodations are collaborative efforts between students, faculty and Disability Access Services (DAS). Students with accommodations approved through DAS are responsible for contacting the faculty member in charge of the course prior to or during the first week of the term. Students who believe they are eligible for accommodations should contact DAS immediately at 737-4098.

Course Description: Proof analysis and development in the context of discrete mathematics for math majors in transition to upper-division course work. Topics include elementary logic and set theory, quantifiers, basic counting principles, elementary combinatorics, equivalence relations, the binomial theorem, and mathematical induction. Additional topics may include recurrence relations, generating functions, and introductory graph theory.

Course Content: Sets; set operations; partitions; propositional logic; quantifiers; implications; direct proofs; indirect proofs; weak induction; strong induction; the Pigeonhole principle; basic counting principles; permutations; combinations; binomial and multinomial coefficients; generating functions; relations; equivalence relations; partial orders; functions; bijections; inverse functions; countability.

Prerequisites: MTH 253 (with MTH 341 recommended)

Schedule: See web for tentative term schedule.

Evaluation: Your grade is determined by 6 homework assignments, a midterm, and a final. Here is the point breakdown:

- Homework - 125 (6 homework sets at 25 points each, taken out of 125 points)
- Midterm - 75 (Wednesday, Feb. 14th, 2-2:50 PM)
- Final - 100 (Tuesday, March 20th, 2-3:50 PM)

Grades will not be harder than:
270 - 300 A/A-, 240 - 269 B+/B-, 210 - 239 C+/C, 180 - 209 D, 0 - 179 F.

Resources: Your primary resource is me. Make use of my office hours and come by as soon as you have any questions related to your study of discrete math. Another resource is the Math and Statistics Learning Center (aka MSLC) in Kidder 108H, which is a great place to drop in for help.
Homework: The homework assignments will be available on the course web page and the due dates are shown on tentative term calendar. Late homework will not be accepted. If for some reason you have to miss a class on a day homework is due, you may either slide it under my office door or scan and e-mail me your assignment (no later than 3 PM on the day the assignment is due). Please be aware that ONLY A RANDOM SUBSET of each assignment will be graded.

Tests: No calculators nor notes are allowed on the exams. Tests cannot be made-up/rescheduled without an extremely compelling reason.

Specific Learning Outcomes: Upon completing MTH 355 a successful student is expected to be able to...

(1) ...construct simple proofs using various proof techniques.
(2) ...construct an inductive argument.
(3) ...solve combinatorics problems.
(4) ...utilize properties of functions and their inverses.
(5) ...be able to identify and understand relations and their properties (in particular, equivalence relations).