Course Information

Instructor:

Name:	Jake Wildstrom
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Office:	Natural Sciences Building 113
Office hours:	Mon 13–15:30, Tue 11–12, Thurs 14:30–15:30, and by appointment

Course Websites:
https://blackboard.louisville.edu/webapps/uofl-redirect-bb_bb60/course_redirect.
jsp?course_id=MATH-311-02-4182
http://aleph.math.louisville.edu/teaching/2018SP-311

Lecture: MWF 12:00–12:50 in Natural Sciences 108.

Prerequisites: MATH 205 or ENGR 101.

Description: Introduction to abstract mathematics with particular attention to developing proof-reading and proof-writing skills. The basics of set theory, functions, relations, number systems, countability, sequences and their convergence, and the complex plane.

Text: *Mathematical Reasoning*, version 1.1, by Ted Sundstrom. This text is available as a free download courtesy of Grand Valley State University.

Objectives: We will learn in this class how to read and write mathematics, and how to craft proofs. We will learn about the fundamental concepts of sets, relations, and functions, and the specific proof tools of direct implication, contradiction, and induction. We will apply our mathematical reasoning to results in set theory, number theory, and combinatorics.

Learning outcomes: Student learning outcomes for this course include the practice and development of *critical thinking skills*, including: identifying the question or problem, analyzing evidence and developing arguments, and drawing conclusions based upon reason, arguments, and evidence.

Responsibilities: You are responsible for attending class daily and maintaining comprehension of the material presented in class. Problem sets will be presented on a roughly weekly basis and posted online for the benefit of students who are absent. Preview activities will be assigned at the beginning of most sections and you will be responsible for working through the preview assignments and participating in in-class discussions based on them. You must complete all assigned problems promptly, and attend examinations on the scheduled dates. Extracurricular interaction with your fellow students, and with the instructor, will be very useful in developing your comprehension. In the interest of promoting structured mathematical writing, solutions to problem sets must be *typed* and will generally need to be written with attention to grammar and clarity. If you intend to continue mathematical writing it is worth your while to learn the LATEX document preparation system for writing your solutions, and I will be happy to help you outside of class with learning and using this system. Midterm exams are given in class on **Friday, February 23rd**, **Friday, April 4th**, and the final will be on **Tuesday, May 1, 11:30–14:00**.

Special needs: Any scheduled absence during the examinations, or any other special needs, *must* be brought to my attention during the first week of class. During a scheduled absence, you are expected to complete the assignments by e-mail. Absence due to unforseen emergencies will be dealt with on a case-by-case basis and must be documented.

Honesty: There are many resources available to help you succeed in this class, particularly consultation during office hours and cooperation with other students. It is important, however, that all papers handed in be the result of your individual comprehension of the course material. Du-

plication of others' work is both a disservice to your own education and a serious violation of the university's academic honesty policy.

Grades: Problem sets will account for 30% of your grade, the two midterm examinations will each be worth 15%, the final examination will be worth 30%, and preview activities and in-class participation will be worth 10%. Problem sets may be revised within a week of the due date to recoup half credit. A 90% overall guarantees a grade of A–, 80% guarantees a B–, and 70% guarantees a C–.

Title IX/Clery Act Notification: Sexual misconduct (including sexual harassment, sexual assault, and any other nonconsensual behavior of a sexual nature) and sex discrimination violate University policies. Students experiencing such behavior may obtain confidential support from the PEACC Program (502-852-2663), Counseling Center (502-852-6585), and Campus Health Services (502-852-6479). To report sexual misconduct or sex discrimination, contact the Dean of Students (502-852-5787) or University of Louisville Police (502-852-6111). Disclosure to University faculty or instructors of sexual misconduct, domestic violence, dating violence, or sex discrimination occurring on campus, in a University-sponsored program, or involving a campus visitor or University student or employee (whether current or former) is not confidential under Title IX. Faculty and instructors must forward such reports, including names and circumstances, to the University's Title IX officer. For more information, see the Sexual Misconduct Resource Guide (`http://louisville.edu/hr/employeerelations/sexual-misconduct-brochure`).

Changes: The syllabus is subject to change. Changes will be announced in class and updated online.