

# MHF 3202 Sets and Logic - Fall 2016

**Time:** MWF 4th period (10:40-11:30 am)

**Place:** 239 Little Hall

**Prerequisite:** Calculus 2

**Web:** <http://people.clas.ufl.edu/jal/mhf3202/>

**Instructor:** Jean A. Larson,

**Office:** 362 Little Hall

**Email:** jal at ufl dot edu

**Phone:** (352) 294-2317

**Tentative Office hours:** Monday 5th, Wednesday 2rd, Friday 3rd, and by appointment.

**Required Text:** *How to Solve it: a Structured Approach*, 2nd edition, by Velleman

**Course Objectives:** MHF 3202 is a bridge course, that is, one designed to help you make the transition from computational mathematics classes like calculus and differential equations into abstract mathematics classes like algebra and analysis. In particular, your goal is to obtain a foundational understanding of standard mathematical notation, to construct logical arguments using standard proof techniques; to detect errors in reasoning in your own arguments and those of others; and to construct illustrative examples and counter-examples.

**Class Format and Attendance:** The class will be a mixture of lecture, group work, discussion, and dialog between the instructor and the class. You develop the proof skills by writing your own proofs, so be prepared to commit the necessary time to do the homework. You are expected to attend class regularly (attendance is taken every day), to be prepared to answer questions on the reading, and to participate in class discussions and group work. If you miss class, you are responsible for finding out about homework and/or announcements made during the class. Requirements for make-up exams, assignments, and other work in this class are consistent with university policies and can be found at:

<https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>

**Academic Honesty:** The course will be conducted in accordance with the University honor code and academic honesty policy, which can be found on the following web site:

<https://catalog.ufl.edu/ugrad/current/advising/info/student-honor-code.aspx>

**Assessment:** After each of the first three exams, the grades given for the recent group work, homework, and quizzes will be totaled and scaled to 8.5, 8.5, 8 points for work grades, usually after dropping the lowest of one type of assignment, accounting for 25% of the total grade.

There will be four 25-point exams, three during the term and one during the final exam period. The lowest score of the four exams will be dropped, giving a maximal possible exam score of 75 points for exams, accounting for 75% of the total grade.

The exams will be based upon homework problems, discussion questions, group work, quizzes and the reading. The tests will be cumulative with a focus on recent material. Written medical documentation is required for makeup exams. No other makeups will be given without prior agreement with the instructor.

Grades will be assigned according to the scale below:

Grade	A	A-	B+	B	B-	C+	C	D	E
Percent	90-100%	87.0-89.99%	84.0-86.99%	80.0-83.99%	77.0-79.99%	74.0-76.99%	70.0-73.99%	60-69.99%	0-59.99%

See the current UF policy on assigning grade points:

<https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>

**Classroom Accommodation:** Students with disabilities requesting classroom accommodation should first register with the Disability Resource Center (352-392-8565, [www.dso.ufl.edu/drc](http://www.dso.ufl.edu/drc))

by proving appropriate documentation. Once registered, students will receive an accommodation letter which must be presented to the instructor when requesting accommodation. Students with disabilities should follow this procedure as early as possible in the semester.

### **Tentative Weekly Schedule:**

1. Sentential logic and operations on sets: 1.1-1.4
2. Quantifiers, logical equivalence, more set operations: 1.5, 2.1-2.2
3. Logical equivalence, more set operations, basic proofs: 2.3, 3.1-2
4. More proofs: 3.1-3.5
5. Exam 1 (September 23); further proof techniques, introduction to relations
6. More on relations: 4.1-4.4.
7. Equivalence relations, induction: 4.3-4.4, 6.1.
8. More induction (homecoming October 14): 6.2-3.
9. Exam 2 (October 21); recursion 6.3:
10. Introduction to functions: 5.1-5.3
11. Inverses, strong induction: 5.3; 6.4
12. Recursion and strong induction: 6.3-6.4.
13. Introduction to infinity: 7.1-7.2
14. Uncountable sets, Thanksgiving: 7.2
15. Cantor-Schröder-Bernstein Theorem: 7.3
16. Exam 3 (December 5)
17. Exam 4 (time of final in schedule of classes)

**Course Evaluations:** Students are expected to provide feedback on the quality of instruction in this course based on 10 criteria. These evaluations are conducted online at <https://evaluations.ufl.edu>. Evaluations are typically open during the last two or three weeks of the semester, but students will be given specific times when they are open. Summary results of these assessments are available to students at <https://evaluations.ufl.edu/results>.