Math 342 – The Mathematics of Social Choice (Fall 2017)

Instructor: Kevin Woods, King 220B, Kevin.Woods@oberlin.edu. Call me Kevin! (he/him/his)

Lectures: MWF 2:30-3:20pm, King 239.

Office Hours:

Monday 9:30-10:30am & 3:30-4pm, Tuesday 12:30-2pm & 3-4:30pm, Wednesday 1:30-2:30pm, Thursday 2:30-3:30pm, Friday 10:30-11:30am, and by appointment. Also, feel free to stop by any time my door is open (but be understanding if I say I am too busy).

Textbook:

None. I will give you handouts of what I talk about in class. You are not responsible for anything not covered in class.

Prerequisites:

MATH 220: Discrete Mathematics. The only important thing from Discrete is comfort with mathematical proofs and readiness for a 300-level math class. An implicit prerequisite is Calculus I (a prereq for Discrete). In the last third of the class, we will need optimization using derivatives, simple integration, and an intuitive understanding of Riemann sums. Even though the subject matter is very approachable, **this is a 300-level math class**: there will be challenging proofs, and things will sometimes get very abstract.

Blackboard:

I will post homework and other announcements on Blackboard.

Grading:

Problem Sets (40%),
Project (10%),
Two Take-Home Midterms (15% each),
Final Exam (20%).

Problem Sets (40%).

The best way to learn the concepts in this course is to get your hands dirty! I hope you will work in groups on these, though your written solutions must be in your own words. This is also an opportunity to work on writing careful, clear proofs and explanations. Good mathematics is articulate mathematics! Explain things carefully and in complete sentences. Imagine that another student in the class who hasn't done this problem yet will read your solution: they should be able to understand it without having to ask you questions. These problems will be graded very strictly for how coherently written they are. Problem sets will be due approximately every Wednesday.

Honor Code: You should (but aren't required) to work together on these problems, but your written solutions must be your own. In particular, you should never be reading someone else's solutions, and you should never just tell someone the solution. Please indicate on your solutions who you worked with.

Late Work: They are due at 5pm. If you do not hand them in at class, I will leave an envelope out for you to put them in. If they are handed in by the time the grader collects them from my office (no guarantees when that is, after 5pm), you get full credit. If they are not, you get a 0 (but your lowest grade will be dropped at the end of the semester).

Project (10%).

You will work in groups of 2 or 3 on a topic not covered in the course. This could be a topic in the textbook or some other book, or it could be a topic from a journal article. Your group will give a presentation to the class on your topic (about 7 minutes * size of group), in the last couple of weeks of the semester. We may schedule special class times to do this. I will give more information later about possible topics, requirements, etc.

Two Take-home midterms (15% each).

Tentatively due Wednesday, October 4 and Wednesday, November 8. These will be open notes, and you'll get several days to work on them. You are not allowed to talk to anyone about these questions. I'll give you more information as the time approaches.

Final Exam (20%).

Saturday, December 16, 2-4pm. The final exam will cover the entire course. It will be closed book, but you will be able to use something like an 8.5x11 sheet with notes.

Disabilities:

If you have a disability of any sort that may affect your performance in this class, please consult with me and with Jane Boomer in the Office of Disability Services. All requests for accommodation must go through that office.