

TOPOLOGY

St. Olaf College • Math 348
Prof. Matthew Wright • Fall 2024

Course Meetings

Tuesdays 8:00 – 9:25am and Thursdays 8:00 – 9:20am in Regents 204

Contact the Professor

If you have any questions or concerns about the course, email Prof. Wright at **wright5@stolaf.edu** or visit office hours. Prof. Wright tries to respond quickly to emails from students during the week, but responses may take a bit longer on the weekends. Office hours are scheduled daily in RMS 405:

Mondays 9 – 10am, Tuesdays 10 – 11am, Wednesdays 2:30 – 3:30pm, Thursdays 1 – 2pm,
Fridays 11am – noon

If the hours above don't work for you, send Prof. Wright an email to arrange a meeting at another time.

Web Site

The course web site is:

<https://math348.mlwright.org/>

You will refer to this web site frequently for homework assignments and course files. We will use Moodle for homework submission and grades.

Text

Our textbook is *Essential Topology* by Martin D. Crossley. Note that this text is available electronically via the St. Olaf Library web site ([use this link](#)).

A few other texts will be useful to us and have been placed on course reserve at the library:

- *Introduction to Topology: Pure and Applied* by Colin Adams and Robert Franzosa
- *Knots, Molecules, and the Universe: An Introduction to Topology* by Erica Flapan
- *Elementary Applied Topology* by Robert Ghrist

Course Objectives

1. Develop and demonstrate understanding of topology as the mathematics of abstract spaces and continuous deformations.
2. Gain appreciation of modern applications of topology to fields such as data analysis, robotics, and other areas of science.
3. Deepen understanding of mathematics as a human activity that combines abstract elegance with real-world utility, in which all people can find success.

Grades

Your final grade will be a weighted average of the following:

Reading Questions:	5%
Weekly Homework:	30%
Exams:	50%
Term Paper:	15%

Each of these items is explained below.

1. **Reading Questions:** Thorough, active reading of the assigned textbook sections will help you to stay on top of the material and get the most out of this course. You will read sections from the textbook and answer comprehension questions before coming to class.
2. **Homework:** A strong commitment to solving problems outside of the classroom is crucial for your success in this course. Homework consisting of problems from the textbook and supplemental problems will be assigned and collected weekly. Your lowest homework grade will be dropped.

Your solutions must be typed in LaTeX (this requirement will be phased in over the first several assignments). Communication of your abstract and quantitative reasoning is just as important as your final answer.

3. **Exams:** There will be two midterm exams and one final exam. Exams will be in class. Midterms tentatively scheduled for October 3 and November 7.

Final exam is scheduled (not tentatively) for December 13, 9:00 – 11:00am. *As you plan your holiday travel, make sure that you will be present for the final exam period for this course!*

Your lowest exam score will be dropped, so your exam grade will be determined by your best two out of the three exams.

You will be expected to abide by the [St. Olaf Honor Code](#) while working on the exams.

4. **Term Paper:** You will complete an expository paper on some topic related to topology. You may work individually or in a group. More information and due dates will be communicated.

Getting Help and Academic Integrity

Collaboration with peers is encouraged in this class on everything except exams. Discussing mathematics with other people is an important part of learning mathematics. However, collaboration must be done appropriately and with integrity.

Inappropriate “collaboration” includes copying answers from a friend, looking up homework solutions in online forums, asking an artificial intelligence to do your homework, any use of any other resource that does the thinking for you. Remember, the goals of this course are to develop and demonstrate your own understanding of topology. You *will not*

achieve these goals if you outsource your thinking to other experts (human or artificial). You *will* achieve these goals through time and effort spent solving topology problems.

Moreover, *you must document what sources you use and what assistance you receive* for work in this course. This could take the form of a simple acknowledgement at the end of your homework assignment.

Claiming someone else or something's work as your own will earn you a failing grade on the work in question. Don't do it. For more information, see the *Academic Integrity* section of *The Book* (wp.stolaf.edu/thebook/academic/integrity).

Prof. Wright is your primary resource for help in this course and is always happy to talk with you. When you need help, or if you have any concerns about the course, please email Prof. Wright or visit his office hours. Furthermore, the Academic Success Center academic coaching and other services – email the Academic Success Center for more information.

In summary:

- It's good to discuss course material and homework with classmates and the professor.
- It's not good to ask someone (or an artificial intelligence) to do the homework for you.
- For each assignment, you must indicate what sources you consulted and what assistance you received (if any).
- If you have any questions or concerns about this course, talk with Prof. Wright.

Attendance

Yes, 8am is early, but that's when this class meets, and it's important for you to be present. If you don't come to class, you're missing out on the discussion and learning that takes place in class. For this reason, it's crucial to develop consistent attendance habits from the beginning of the semester.

If you miss two consecutive classes without contacting me, I will reach out to the Dean of Students Office to make sure you're getting the support you need.

If you miss four classes (consecutive or not) without contacting me, I'll require you to complete an additional form of engagement to show that you're making an effort to keep up with the course.

If you miss seven classes for any reason(s), and regardless of whether you contact me, I'll encourage you to consider dropping the course. Seven class sessions amounts to more than 25% of this course, which is an excessive amount of absences that severely detracts from your learning throughout the semester.

Inclusivity and Access

Prof. Wright is committed to facilitating a safe, caring, and inclusive learning community, respecting those of differing backgrounds and beliefs. As part of St. Olaf College, we aim to be respectful to everyone in this class, regardless of race, ethnicity, religion, gender, or sexual orientation. All students are capable of success in mathematics, and Prof. Wright

aims to create an environment in which all can succeed. If you have any questions or concerns, don't hesitate to talk with Prof. Wright.

If you have any concerns about access to course materials, or if English is not your first language and this causes you concern, please talk with Prof. Wright.

Health and Accommodations

Prof. Wright is committed to supporting all students. He recognizes that emotional, physical, or psychological experiences, both in and out of the classroom, have the potential to distract students from learning. If you have any concerns, please do not hesitate to contact the professor—he is available to listen and to discuss what resources may be available to you.

If you are sick, please do not come to class—instead, email the professor. Face masks to prevent the spread of respiratory diseases are welcome in class. Please respect individuals who may choose to wear face masks.

If you have an accommodation letter from the Disability and Access (DAC) office, please meet with the professor early in the course to discuss, plan, and implement your accommodations in the course. Otherwise, if you have or think you have a disability please contact the Disability and Access office at 507-786-3288 or wp.stolaf.edu/academic-support/dac/.