

# Math 531—Fall 2021—CRN 14010 and 14017

## Course Information

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| <b>Instructor</b>   | Robert Lipshitz  |
| <b>e-mail</b>       | lipshitz@uoregon.edu   |
| <b>Office</b>       | Fenton 303   |
| <b>Office Hours</b> | In-person: M 3-4 p.m., W 4-5 p.m.; Online (Zoom): M 8-9 p.m.<br>Subject to change. |

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| <b>Course Prerequisites</b> | For undergraduate students, Math 317 (real analysis) to enroll in Math 431. All first-year mathematics graduate students are assumed to be ready for Math 531. Anyone except mathematics graduate students requires the instructor's permission to enroll in Math 531. |
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| <b>Course Requirements</b> | There will be written homework due roughly once a week, initially on Wednesdays. The first written homework assignment is due on Friday of the first week of classes. There will be an in-class midterm exam and an in-class final exam. At least initially, homework will be uploaded to Canvas.<br>There <i>will</i> be new material covered and a homework assignment due during the last week of classes. |
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| <b>Test Dates</b> | <i>Midterm</i> : November 1. Subject to change if necessary.<br><i>Final exam</i> : per Registrar's schedule.<br>Generally, there will <i>not</i> be makeup exams. If you are unable to attend the exam, contact me <i>as soon as possible</i> to discuss whether other arrangements are possible. |
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| <b>Grading Policy</b> | Written Homework | 35% |
|                       | Midterm          | 25% |
|                       | Final Exam       | 40% |

The lowest homework score will be dropped. Late homework will typically not be accepted.

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| <b>Students with disabilities</b> | The University of Oregon is committed to an inclusive learning environment. If you have a disability which may impact your performance on exams, please contact the Accessible Education Center to discuss appropriate accommodations. If there are other disability-related barriers to your participation in the course, please either discuss them with me directly or consult with the Accessible Education Center. |
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**Course Policies:**

- Cell phones, computers, etc. are not permitted in this class except by instructor's permission. (They don't bother me, but there is strong evidence they distract other students.)
- Students are expected to read the sections in the textbook *before* they are covered in class.
- Electronics, notes and the textbook are not permitted on exams.
- You are welcome to work on the homework together, but you must write up your final answers by yourself. Failure to abide by this policy constitutes cheating.
- Any resources you use when solving homework problems, other than the textbooks, must be cited in your homework. This includes human resources: if someone helped you with the homework, say who and what they helped you with. You may *not* use electronic resources (e.g., Google) other than the textbook and recommended textbooks. Failure to follow this policy constitutes cheating; if you are caught cheating on the homework you will receive a 0 for the homework portion of the class and will be reported to the administration. Failure to cite sources constitutes academic misconduct.
- Requirements for students in Math 431 and 531 are slightly different. In addition to the requirements for Math 431, students in Math 531 are expected to:
  - Solve at least one of the “challenge” homework problems per week.
  - Type the solutions to their homework assignments in LaTeX.

**Course Resources:**

- Textbook: *Introduction to topological manifolds*, second edition, by John Lee.
- Suggested additional textbooks: *Topology* by James Munkres, *Principles of Mathematical Analysis* by Walter Rudin.
- We will use Canvas to track grades and post some solutions.
- Course website, with up to date syllabus and assignments:  
<http://pages.uoregon.edu/lipshitz/Teaching/Fa21Ma531.html>



**Getting Help:** I have office hours every week. Get help as soon as you feel confused. See the course webpage for additional advice.

**Course goals:** The main goals of this course (learning outcomes) are:

- Being able to work with, and write proofs about, metric spaces, general topological spaces, and continuous maps between them.
- Developing an intuition for a wide range of topological spaces and maps between them.
- Being able to construct topological spaces in various ways.
- Understanding various properties that topological spaces and continuous maps may have (such as compactness, connectedness, path connectedness, the Hausdorff property, properness), and consequences of these properties, and being able to write proofs using these properties and their consequences.

Further COVID comments:

- (1) I will try to keep track of who is sitting where in class, in case that's needed for contact tracing. So, if you *change* where you're sitting, tell me.
- (2) If you miss multiple classes because of having to quarantine, I will handle that the way I lead reading courses. That is, you will read the material in the book and then meet with me (virtually) once a week to explain what you've read. (You'll still be responsible for doing the homework.) Everyone in quarantine will meet with me at the same time.

The university requires me to put the following boilerplate information on the syllabus. It should be on the syllabus for all of your classes, so you may not need to read this again. (This is mostly copied from <https://provost.uoregon.edu/syllabus-guidelines>.)

### Academic Disruption

In the event of a campus emergency that disrupts academic activities, course requirements, deadlines, and grading percentages are subject to change. Information about changes in this course will be communicated as soon as possible by email, and on Canvas. If we are not able to meet face-to-face, students should immediately log onto Canvas and read any announcements and/or access alternative assignments. Students are also expected to continue coursework as outlined in this syllabus or other instructions on Canvas.

In the event that the instructor of this course has to quarantine, this course may be taught online during that time.

### COVID Containment Plan for Classes

As the University of Oregon returns to in-person instruction, the key to keeping our community healthy and safe involves prevention, containment, and support. Here is information critical to how the UO is responding to COVID-19.

- Prevention: To prevent or reduce the spread of COVID-19 in classrooms and on campus, all students and employees must:
  - Comply with vaccination policy
  - Wear face coverings in all indoor spaces on UO campus
  - Complete weekly testing if not fully vaccinated or exempted
  - Wash hands frequently and practice social distancing when possible
  - Complete daily self-checks
  - Stay home/do not come to campus if feeling symptomatic
  - Complete the UO COVID-19 case and contact reporting form if you test positive or have been in close contact with a confirmed or presumptive case.
- Containment: If a student in class tests positive for COVID-19, all relevant classes will be notified via an email by the Corona Corps Care Team with instructions for students and staff based on their vaccination status. Specifically:
  - Vaccinated and Asymptomatic students: Quarantine not required, but daily self-monitoring before coming on campus is advised; sign up for testing through MAP 3-5 days after exposure if advised you are a contact.”
  - Unvaccinated or partially vaccinated students: 14-day quarantine advised – do not come to class – and sign up for testing 3-5 days after notification through MAP, if asymptomatic, or through University Health Services (541-346-2770) or your primary care provider, if symptomatic.

- Symptomatic students: stay home (do not come to class/campus), complete the online case and contact form, and contact University Health Services (541-346-2770) or your primary care provide to arrange for immediate COVID-19 testing.
- Students identified as a close contacts of a positive case will be contacted by the Corona Corps Care Team (541-346-2292).
- Support: The following resources are available to you as a student.
  - University Health Services. <https://health.uoregon.edu/> or call (541) 346-2770
  - University Counseling Center. <https://counseling.uoregon.edu/> or call (541) 346-3277 or (541) 346-3227 (after hrs.)
  - MAP Covid-19 Testing <https://coronavirus.uoregon.edu/testing#students>
  - Corona Corps <https://coronavirus.uoregon.edu/corona-corps> or call (541) 346-2292
  - Academic Advising <https://advising.uoregon.edu/> or call (541) 346-3211
  - Dean of Students <https://dos.uoregon.edu/> or call (541)-346-3216
- Good Classroom Citizenship
  - Wear your mask and make sure it fits you well
  - Stay home if you're sick
  - Get to know your neighbors in class, and let them know if you test positive
  - Get tested regularly
  - Watch for signs and symptoms with the daily symptom self-check
  - Wash your hands frequently or use hand sanitizer
- Complete the UO COVID-19 case and contact reporting form if you test positive or are a close contact of someone who tests positive.

### **Academic Misconduct**

“The University Student Conduct Code (available at [conduct.uoregon.edu](https://conduct.uoregon.edu)) defines academic misconduct. Students are prohibited from committing or attempting to commit any act that constitutes academic misconduct. By way of example, students should not give or receive (or attempt to give or receive) unauthorized help on assignments or examinations without express permission from the instructor. Students should properly acknowledge and document all sources of information (e.g. quotations, paraphrases, ideas) and use only the sources and resources authorized by the instructor. If there is any question about whether an act constitutes academic misconduct, it is the students’ obligation to clarify the question with the instructor before committing or attempting to commit the act. Additional information about a common form of academic misconduct, plagiarism, is available at <https://researchguides.uoregon.edu/citing-plagiarism>.”

### **Inclement Weather**

“It is generally expected that class will meet unless the University is officially closed for inclement weather. If it becomes necessary to cancel class while the University remains open, this will be announced on Canvas and by email. Updates on inclement weather and closure are also communicated in other ways described here: <https://hr.uoregon.edu/about-hr/campus-notifications/inclement-weather/inclement-weather-immediate-updates>”

If you’ve read this far and think that having all of this on every syllabus for every course is useful, please send me an e-mail.

### **Reporting Obligations**

“The following is the recommended minimum language to include on syllabi:

“I am a [designated reporter/student-directed employee]. For information about my reporting obligations as an employee, please see Employee Reporting Obligations on the Office of Investigations and Civil Rights Compliance (OICRC) website. Students experiencing any form of prohibited discrimination or harassment, including sex or gender-based violence, may seek information and resources at [safe.uoregon.edu](http://safe.uoregon.edu), [respect.uoregon.edu](http://respect.uoregon.edu), or [investigations.uoregon.edu](http://investigations.uoregon.edu) or contact the non-confidential Title IX office/Office of Civil Rights Compliance (541-346-3123), or Dean of Students offices (541-346-3216), or call the 24-7 hotline 541-346-SAFE for help. I am also a mandatory reporter of child abuse. Please find more information at Mandatory Reporting of Child Abuse and Neglect.” ”

### **Mental Health and Wellness**

“Life at college can be very complicated. Students often feel overwhelmed or stressed, experience anxiety or depression, struggle with relationships, or just need help navigating challenges in their life. If you’re facing such challenges, you don’t need to handle them on your own—there’s help and support on campus.

As your instructor if I believe you may need additional support, I will express my concerns, the reasons for them, and refer you to resources that might be helpful. It is not my intention to know the details of what might be bothering you, but simply to let you know I care and that help is available. Getting help is a courageous thing to do—for yourself and those you care about.

University Health Services help students cope with difficult emotions and life stressors. If you need general resources on coping with stress or want to talk with another student who has been in the same place as you, visit the Duck Nest (located in the EMU on the ground floor) and get help from one of the specially trained Peer Wellness Advocates. Find out more at [health.uoregon.edu/ducknest](http://health.uoregon.edu/ducknest).

University Counseling Services (UCS) has a team of dedicated staff members to support you with your concerns, many of whom can provide identity-based support. All clinical services are free and confidential. Find out more at [counseling.uoregon.edu](http://counseling.uoregon.edu) or by calling 541-346-3227 (anytime UCS is closed, the After-Hours Support and Crisis Line is available by calling this same number).”

Shorter, human version: if you’re feeling terrible, talk to someone about it. You can tell me about it, but I will also encourage you to meet with someone with appropriate training and experience.

### **Basic Needs**

“Any student who has difficulty affording groceries or accessing sufficient food to eat every day, or who lacks a safe and stable place to live and believes this may affect their performance in the course is urged to contact the Dean of Students Office (346-3216, 164 Oregon Hall) for support.

This UO webpage includes resources for food, housing, healthcare, childcare, transportation, technology, finances, and legal support: <https://blogs.uoregon.edu/basicneeds/food/>”

### **Accommodation for Religious Observances**

The university makes reasonable accommodations, upon request, for students who are unable to attend a class for religious obligations or observance reasons, in accordance with the university discrimination policy which says “Any student who, because of religious beliefs, is unable to attend classes on a particular day shall be excused from attendance requirements and from any examination or other assignment on that day. The student shall make

up the examination or other assignment missed because of the absence.” To request accommodations for this course for religious observance, visit the Office of the Registrar’s website (<https://registrar.uoregon.edu/calendars/religious-observances>) and complete and submit to the instructor the “Student Religious Accommodation Request” form prior to the end of the second week of the term.

### **Grading standards**

Grades will be assigned consistent with the following standards:

- A+: Demonstrated comprehensive mastery of the course material and outstanding performance on exams and homework.
- A: Demonstrated comprehensive mastery of the course material.
- A-: Like an A, but not quite as comprehensive.
- B+: Not quite as good as an A-, but better than a B.
- B: Demonstrated a solid command of all of the key concepts and techniques in the course.
- B-: Not quite as solid a command as a B, but almost.
- C+: Has demonstrated a solid command of most key concepts in the course, but with some nontrivial gaps.
- C: A solid command of many key concepts of the class, but with some serious gaps.
- C-: Slightly more serious gaps than a C.
- D: Did not demonstrate understanding of substantial parts of the course.
- F: Did not demonstrate understanding of even more substantial parts of the course, or participated in some kind of academic dishonesty.