

# MATH431/535 Foundation of Topology

Instructor: Junqing Qian

Fall 2021

**Time:** M/W/F 14:00-14:50

**Location:** DSH 229 & Zoom

**Note:** Both classes (431/535/537) will be delivered in-person and via Zoom. You can choose to attend the lectures in-person or via Zoom; lecture videos and notes will be uploaded in UNM Learn.

**Office Hour:** M/F: 10:30 am - 12:00 pm      **@Location:** SMLC 308 & Zoom

**Textbook:**

1. “Topology (2e)” by J. Munkres as main textbook;
2. “Basic Topology” by M. A. Armstrong as a supplementary textbook.

## Course Description

Topics covered:

1. Basic properties of a topology, open sets, closed sets, covers, continuous maps
2. Connectedness, Hausdorff property, local compactness, compactness, paracompactness
3. Products, quotient topology and spaces, identification topology and spaces, metric spaces, homeomorphisms
4. Basic properties of a topological manifold, embeddings and immersions of topological manifolds
5. Elementary homotopy theory, homotopy equivalence, fundamental group, covering spaces

## Credit-Hour

This is a three credit-hour course. Class meets for three 50-minute sessions of direct instruction for fifteen weeks during the Fall 2021 semester. Students are expected to complete a minimum of six hours of out-of-class work (or homework, study, assignment completion, and class preparation) each week. This is a three credit-hour course taught over eight weeks. Students are expected to complete a minimum of 12 hours of out-of-class work (or homework, study, assignment completion, and class preparation) each week in addition to 6 hours of instructional time for a total of 18 hours.

## Grading

1. Homework: weekly homework, please use LaTeX to compile your submission. Helpful LaTeX information will be provided.
2. Exams: a midterm and a final.
3. Grade = Highest 50% + Lowest 20% + the other one 30%

## Accommodation

In accordance with University Policy 2310 and the Americans with Disabilities Act (ADA), academic accommodations may be made for any student who notifies the instructor of the need for an accommodation. It is imperative that you take the initiative to bring such needs to the instructor's attention, as I am not legally permitted to inquire. Students who may require assistance in emergency evacuations should contact the instructor as to the most appropriate procedures to follow. Contact Accessibility Resource Center at 277-3506 or arcsrvs@unm.edu for additional information. UNM is committed to providing courses that are inclusive and accessible for all participants. As your instructor, it is my objective to facilitate an accessible classroom setting, in which students have full access and opportunity. If you are experiencing physical or academic barriers, or concerns related to mental health, physical health and/or COVID-19, please consult with me after class, via email/phone or during office hours. You are also encouraged to contact Accessibility Resource Center at arcsrvs@unm.edu or by phone 277-3506.

## Academic Integrity Statement

Departments, schools, colleges or campuses may require different wording. Listed below is the statement listed in the UNM Student Handbook Each student is expected to maintain the highest standards of honesty and integrity in academic and professional matters. The University reserves the right to take disciplinary action, up to and including dismissal, against any student who is found guilty of academic dishonesty or otherwise fails to meet the standards. Any student judged to have engaged in academic dishonesty in course work may receive a reduced or failing grade for the work in question and/or for the course. Academic dishonesty includes, but is not limited to, dishonesty in quizzes, tests, or assignments; claiming credit for work not done or done by others; hindering the academic work of other students; misrepresenting academic or professional qualifications within or without the University; and nondisclosure or misrepresentation in filling out applications or other University records

## Title IX

In an effort to meet obligations under Title IX, UNM faculty, Teaching Assistants, and Graduate Assistants are considered "responsible employees"). This designation requires that any report of gender discrimination which includes sexual harassment, sexual misconduct and sexual violence made to a faculty member, TA, or GA must be reported to the Title IX Coordinator at the Office of Compliance, Ethics, and Equal Opportunity. For more information on the campus policy regarding sexual misconduct, see: <https://policy.unm.edu/university-policies/2000/2740.html>

## UNM-COVID policy/guidelines

- 1. UNM Requirement on Masking in Indoor Spaces.** All students, staff, and instructors are required to wear face masks in indoor classes, labs, studios and meetings on UNM campuses, see the masking requirement. Qualified music students must follow appropriate specific mask policies issued by the Chair of the Department of Music and the Dean of the College of Fine Arts. Students who do not wear a mask indoors on UNM campuses can expect to be asked to leave the classroom and to be dropped from a class if failure to wear a mask occurs more than once in that class. With the exception of the limited cases described above, Students and employees who do not wear a mask in classrooms and other indoor public spaces on UNM campuses are subject to disciplinary actions. UNM will periodically evaluate and update the mask policy relative to public health conditions.
- 2. Vaccination UNM Administrative Mandate on Required Vaccinations** All students, staff, and instructors are required by UNM Administrative Mandate on Required Vaccinations to be fully vaccinated for COVID-19 as soon as possible, but no later than September 30, 2021, and must provide proof of vaccination or of a UNM validated limited exemption or exemption no later than September 30, 2021 to the UNM vaccination verification site. Students seeking medical exemption from the vaccination policy must submit a request to the UNM verification site for review by the UNM Accessibility Resource Center. Students seeking religious exemption from the vaccination policy must submit a request for reasonable accommodation to the UNM verification site for review by the Compliance, Ethics, and Equal Opportunity Office. For further information on the requirement and on limited exemptions and exemptions, see the UNM Administrative Mandate on Required Vaccinations.
- 3. Modality Communication on change in modality:** The President and Provost of UNM may direct that classes move to remote delivery at any time to preserve the health and safety of the students, instructor and commu-

nity. Please check UNM Learn regularly for updates about our class and please check <https://bringbackthepack.unm.edu> regularly for general UNM updates about COVID-19 and the health of our community.

4. More about Mask: Acceptable masks and mask wearing in class: A two-layer mask that covers the nose and mouth and that is cleaned regularly is acceptable, as are disposable medical masks, KN95, KF94, FFP1 and FFP2 masks. A face shield is not sufficient protection. It is vital that you wear your mask correctly, covering your nose and mouth. Removing your mask for an extended period to eat or drink in class violates the university mask requirement and endangers others. Consequences of not wearing a mask properly: If you don't wear a mask, or if you do not wear a mask properly by covering your nose and mouth, you will be asked to leave class. If you fail to wear a mask properly on more than one occasion, you can expect to be dropped from the class. If you insist on remaining in the classroom while not wearing a mask, class will be dismissed for the day to protect others and you will be dropped from the class immediately. The instructor will try to have a few disposable masks available on a first-come, first-served basis.

## Others

- Guidelines for Community Standards: We can establish a productive and respectful learning environment in this course by co-constructing a set of community agreements during the first week of the semester. Students will work in small groups (3-5) and create a list of 5-7 suggestions that they will then present to the whole class. This is your opportunity to influence the atmosphere in the course. The instructor will collate all of the guidelines and tailor them into a document that will become part of the course syllabus. Here are some examples of classroom guidelines that you may use for a reference point: <https://crlt.umich.edu/examples-discussion-guidelines#guidelines>
- Citizenship and/or Immigration Status: All students are welcome in this class regardless of citizenship, residency, or immigration status. Your professor will respect your privacy if you choose to disclose your status. As for all students in the class, family emergency-related absences are normally excused with reasonable notice to the professor, as noted in the attendance guidelines above. UNM as an institution has made a core commitment to the success of all our students, including members of our undocumented community. The Administration's welcome is found on our website: <http://undocumented.unm.edu/>.