

# Current Prob in Topology (SP23)

[Jump to Today](#)



## Math 124 Current Problems in Topology

**This course meets Monday, Wednesday, Friday 12:50-1:55. We will have the occasional x-hours on Tuesday 1:20-2:10. The course meets in Kemeny 307.**

**Course Textbook:** we will not be using any textbooks, I will try to distribute lecture handouts regularly

**Instructor:** Vladimir Chernov, **Office Hours** Monday 11:30-12:30 PM, Tuesday 11:30-12:30 PM, Wednesday 11:30-12:30 PM My office is 304 Kemeny. If you can not come to the office hours please do not hesitate to make an appointment in Zoom or in person.

**Course grade** will be based on on attendance, class participation and occasional homework 80%. Since this is a topics class there will be no or little homework. If you want to get a grade **above** B or P you would need to make a 20 minute Middle of the Term Presentation and a 20 minute End of the Term presentation on the topic of your choice related philosophically to the general material covered in the course, these two presentations will be 10% each for the total of 20%.

**Middle of the term presentation** to be held in the week of Friday May 5 - Saturday May 6 in Zoom. The **Middle of the term presentation and discussion will be 10%** of the total course grade.

**End of the term presentation and discussion** will be held during the Thursday June 1 - Saturday June 3 period in Zoom and it will be **10 % of the total course grade.**

### ***Tentative Course Schedule:***

*Weeks 1 and 2: Classification of spacetimes, causal ladder, space of light rays;*

*Week 3 Linking and causality conjectures and their solution;*

*Week 4 Classical linking numbers and formulas for them, linking number as a Vassiliev invariant and its alternative definition;*

*Weeks 5 and 6 Generalizations of linking numbers to the nonclassical situations and their applications to the study of causality;*

*Week 7 generalization of self-linking numbers and the question whether you can change framing by isotopy, some open conjectures;*

*Week 8 Generalizations of the Andersen-Mattes-Reshetikhin algebra that allows us to construct the generalized linking numbers. Counting the minimal number of double points for curves;*

*Week 9 virtual ordinary and Legendrian knots and their conjectural application to the study of causality in Morse spacetimes*

## **COVID-19 Information:**

### **Attendance:**

You are expected to attend class in person unless you have made alternative arrangements due to illness, medical reasons, or the need to isolate due to COVID-19. For the health and safety of our class community, please: **do not attend class when you are sick**, nor when you have been instructed by Student Health Services to stay home. (If you are unable to attend class, please contact your instructor for further instructions.)

### **Safety:**

In accordance with [current College policy \(https://current.collegepolicy.com/face-mask-policy\)](https://current.collegepolicy.com/face-mask-policy), all members of the Dartmouth community under the conditions described in the [face-mask policy \(https://current.collegepolicy.com/face-mask-policy\)](https://current.collegepolicy.com/face-mask-policy) are required to wear a suitable face covering when indoors, regardless of vaccination status. This includes our classroom and other course-related locations, such as labs, studios, and office hours. Masks are welcome at Dartmouth. If you feel more comfortable wearing a mask around others, you are encouraged to do so. (The only exception to the mask requirement is for students with an approved disability-related accommodation; see [Student Accessibility Needs \(https://studentaccessibilityneeds.com\)](https://studentaccessibilityneeds.com).) If you do not have an accommodation and refuse to comply with masking or other safety protocols, your instructor is obligated to assure that the COVID health and safety standards are followed, and you will be asked to leave the classroom. You remain subject to course attendance policies, and dismissal from class will result in an unexcused absence. If you refuse to comply with masking or other safety protocols, and to ensure the health and safety of our community, your instructor is obligated to report you to the Dean's office for disciplinary action under Dartmouth's [Standards of Conduct \(https://standardsconduct.com\)](https://standardsconduct.com). Additional COVID-19 protocols may emerge. Pay attention to emails from the senior administrators at the College.

## **Consent to Record**

*(1) Consent to recording of course and group office hours*

*By enrolling in this course,*

*a) I affirm my understanding that the instructor may record this course and any associated group meetings involving students and the instructor, including but not limited to scheduled and ad hoc office hours and other consultations, within any digital platform used to offer remote instruction for this course;*

*b) I further affirm that the instructor owns the copyright to their instructional materials, of which these recordings constitute a part, and my distribution of any of these recordings in whole or in part*

*without prior written consent of the instructor may be subject to discipline by Dartmouth up to and including expulsion;*

*(2) Requirement of consent to one-on-one recordings*

*By enrolling in this course, I hereby affirm that I will not under any circumstance make a recording in any medium of any one-on-one meeting with the instructor without obtaining the prior written consent of all those participating, and I understand that if I violate this prohibition, I will be subject to discipline by Dartmouth up to and including expulsion, as well as any other civil or criminal penalties under applicable law.*

## Academic Honors Principle

Cooperation on daily and weekly homework is permitted (and encouraged), but you should write up the solution on your own. In other words, you might share your thoughts on a sheet of paper or blackboard to get started together, but then work on your own submission afterwards using only your understanding. For weekly homework, please acknowledge any cooperative work by listing your collaborators at the end of each assignment.

Plagiarism, collusion, or other violations of the [Academic Honor Principle](https://students.dartmouth.edu/community-standards/policy/academic-honor-principle) (<https://students.dartmouth.edu/community-standards/policy/academic-honor-principle>) will be referred to the The Committee on Standards. If you have any questions as to whether some action would be acceptable under the Academic Honor Principle, please speak to your instructor beforehand. For more information about standards of conduct, please see [these resources](https://students.dartmouth.edu/community-standards/) (<https://students.dartmouth.edu/community-standards/>).

## Mental Health

The academic environment at Dartmouth is challenging, our terms are intensive, and classes are not the only demanding part of your life. There are a number of resources available to you on campus to support your wellness, including your:

- Undergraduate Dean (<http://www.dartmouth.edu/~upperde/> (<http://www.dartmouth.edu/~upperde/>));
- Counseling and Human Development (<http://www.dartmouth.edu/~chd/> (<http://www.dartmouth.edu/~chd/>)); and the
- Student Wellness Center (<http://www.dartmouth.edu/~healthed/> (<http://www.dartmouth.edu/~healthed/>)).

I encourage you to use these resources to take care of yourself throughout the term, and to come speak to me if you experience any difficulties.

## Title IX

At Dartmouth, we value integrity, responsibility, and respect for the rights and interests of others, all central to our Principles of Community. We are dedicated to establishing and maintaining a safe and inclusive campus where all have equal access to the educational and employment opportunities Dartmouth offers. We strive to promote an environment of sexual respect, safety, and well-being. In its policies and standards, Dartmouth demonstrates unequivocally that sexual assault, gender-based harassment, domestic violence, dating violence, and stalking are not tolerated in our community.

The Sexual Respect Website (<https://sexual-respect.dartmouth.edu> (<https://sexual-respect.dartmouth.edu/>)) at Dartmouth provides a wealth of information on your rights with regard to sexual respect and resources that are available to all in our community.

Please note that, as a faculty member, I am obligated to share disclosures regarding conduct under Title IX with Dartmouth's Title IX Coordinator. Confidential resources are also available, and include licensed medical or counseling professionals (e.g., a licensed psychologist), staff members of organizations recognized as rape crisis centers under state law (such as WISE), and ordained clergy (see [https://dartgo.org/titleix\\_resources](https://dartgo.org/titleix_resources) ([https://dartgo.org/titleix\\_resources](https://dartgo.org/titleix_resources))).

Should you have any questions, please feel free to contact Dartmouth's Title IX Coordinator or the Deputy Title IX Coordinator for the Guarini School. Their contact information can be found on the sexual respect website at: <https://sexual-respect.dartmouth.edu> (<https://sexual-respect.dartmouth.edu/>).

## Religious Observances

Some students may wish to take part in religious observances that occur during this academic term. If you have a religious observance that conflicts with your participation in the course, please meet with me as soon as possible, or before the end of the second week of the term—at the latest, to discuss appropriate adjustments. Dartmouth has a deep commitment to support students' religious observances and diverse faith practices.

## Student Accessibility Needs

Students requesting disability-related accommodations and services for this course are required to register with Student Accessibility Services (SAS; [Apply for Services webpage](#) ([student.accessibility.services@dartmouth.edu](mailto:student.accessibility.services@dartmouth.edu) (<mailto:student.accessibility.services@dartmouth.edu>); 1-603-646-9900) and to request that an accommodation email be sent to me in advance of the need for an accommodation. Then, students should schedule a follow-up meeting with me to determine relevant details such as what role SAS or its [Testing Center](#) ([<https://canvas.dartmouth.edu/courses/57816>](https://nam12.safelinks.protection.outlook.com/?url=https%3A%2F%2Fstudents.dartmouth.edu%2Fstudent-accessibility%2Fservices%2Ftesting-</a></p>
</div>
<div data-bbox=)

[center&data=05%7C01%7Cvladimir.chernov%40dartmouth.edu%7C88c28a661714471142ef08da91afaa8b%7C](#)

may play in accommodation implementation. This process works best for everyone when completed as early in the quarter as possible. If students have questions about whether they are eligible for accommodations or have concerns about the implementation of their accommodations, they should contact the SAS office. All inquiries and discussions will remain confidential.

## Course Summary:

Date	Details	Due
------	---------	-----

---