

THEORY OF GROUPS (SPRING 2022)

Course. MATH 553 (M1 8:30-9:50am, Th4 2:00-3:20 pm, remote synchronous)

Instructor. Dr. P. H. Tiep

Contact information.

Office: Hill Center 720, Tel: (848) 445-6915
email: tiep@math.rutgers.edu
webpage: <http://www.math.rutgers.edu/~pht19>

Office hours. Thursday 3:30–4:20pm (virtual). If this time is inconvenient, make a special arrangement with me whenever you need help.

Textbook. The course will partially be based on the books ‘**Linear Algebraic Groups and Finite Groups of Lie type**’ by G. Malle and D. Testerman, Cambridge University Press, 1st ed, 2011 ISBN: 978-1-107-00854-0

Content. Algebraic groups and their finite counterparts – finite groups of Lie type – play an important role in mathematics, particularly in group theory and number theory. The goal of this course is to give an introduction to the theory of linear algebraic groups (mostly over algebraically closed fields of positive characteristic) and finite groups of Lie type. We will explain these basic notions, prove some fundamental theorems about them, and, time permits, introduce the audience to some basic ideas of the Deligne-Lusztig theory.

Prerequisites include mostly basic facts on groups, commutative rings, and fields covered by a standard algebra course.

Homework. Homework assignments will be given and frequently updated on my website <http://www.math.rutgers.edu/~pht19>

The homework will be collected, and some selected problems will be graded.

Grade. Your grade will be based on your homework and your participation in class.

Important. Your written work should be neat. Show all your work. Answers with no work and/or no explanations will receive no credit. Please remember that the instructor is here to help you, so never afraid to ask for help.

Students are expected to attend every scheduled class and to be familiar with the University Class Attendance policy. It is the student’s responsibility to keep informed of any announcements, syllabus adjustments or policy changes made during scheduled classes.

Students are expected to behave in accordance with the Code of Academic Integrity, see <http://academicintegrity.rutgers.edu/academic-integrity-policy>

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The university is fully committed to compliance with the Americans with Disabilities Act; policies and procedures are indicated at <http://ods.rutgers.edu>. Students who wish to request special accommodations must present a Letter of Accommodations to the instructor as early in the term as possible.

Student-Wellness Services.

- **Just In Case Web App** <http://codu.co/cee05e>

Access helpful mental health information and resources for yourself or a friend in a mental health crisis on your smartphone or tablet and easily contact CAPS or RUPD.

- **Counseling, ADAP & Psychiatric Services (CAPS)** (848) 932-7884
17 Senior Street, New Brunswick, NJ 08901 / www.rhscaps.rutgers.edu/

CAPS is a University mental health support service that includes counseling, alcohol and other drug assistance, and psychiatric services staffed by a team of professional within Rutgers Health services to support students' efforts to succeed at Rutgers University. CAPS offers a variety of services that include: individual therapy, group therapy and workshops, crisis intervention, referral to specialists in the community and consultation and collaboration with campus partners.

- **Violence Prevention & Victim Assistance (VPVA)** (848) 932-1181
3 Bartlett Street, New Brunswick, NJ 08901 / www.vpva.rutgers.edu/

The Office for Violence Prevention and Victim Assistance provides confidential crisis intervention, counseling and advocacy for victims of sexual and relationship violence and stalking to students, staff and faculty. To reach staff during office hours when the university is open or to reach an advocate after hours, call 848-932-1181.

- **Disability Services** (848) 445-6800

Lucy Stone Hall, Suite A145, Livingston Campus, 54 Joyce Kilmer Avenue, Piscataway, NJ 08854 / <https://ods.rutgers.edu/>

The Office of Disability Services works with students with a documented disability to determine the eligibility of reasonable accommodations, facilitates and coordinates those accommodations when applicable, and lastly engages with the Rutgers community at large to provide and connect students to appropriate resources.

- **Scarlet Listeners** (732) 247-5555 / <http://www.scarletlisteners.com/>

Free and confidential peer counseling and referral hotline, providing a comforting and supportive safe space.

Homework assignments (tentatively, with due dates, to be updated).

Feb. 11: List 1

March 4: List 2

March 25: List 3

April 15: List 4

May 2: List 5