Math 581 – Section 1

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Office Hours: By appointment

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Course Objectives: The main objective of this course is to give graduate students a stronger foundation in core areas of linear algebra and abstract algebra, as well as an introduction to modern applications of these topics. Topics will vary depending on the interests of the students enrolled and availability of outside speakers.

Topics covered: Topics will include but are not limited to:

Core topics:

1. The geometry of linear transformations – eigenvalues, generalized eigenvectors, rational canonical form, projections, and invariant cones.
2. Finite fields and the Chinese remainder theorem.
3. Lie Algebras

Applications:

1. Robotics, machine learning and artificial intelligence, and diagnosing tremor disorders.
2. Cryptography.
3. Physics.

Suggested Resources:

Mathematica cdf player (free) or Mathematica ($55/semester)
Matlab (soon to be available free to WSU students and faculty – details coming).

Assessment (a la carte):

Attendance and professional behavior	100 pts/semester
Homework	10 pts/exercise
Projects	50 to 100 pts/project
Class presentations	50 pts/presentation
Outside interview and write up	50 pts/interview
Negotiated tasks	TBN

Grading (a la carte):

A: earn 100 points or more per enrolled credit
B: earn 75 points or more per enrolled credit
C: earn 50 points or more per enrolled credit

Learning Outcomes:

1. Increased understanding and knowledge in core areas of linear algebra and abstract algebra, assessed through homework exercises and demonstrated use in applications.
2. Learning to play and experiment with linear algebra and abstract algebra, assessed by use of linear algebra and abstract algebra in projects, presentations, outside interviews and negotiated tasks.
3. A better understanding of where linear algebra and abstract algebra as used in modern applications, assessed through projects, presentations and interviews.

Students with Disabilities: Reasonable accommodations are available for students with a documented disability. If you have a disability and need accommodations to fully participate in this class, please either visit or call the Access Center to schedule an appointment with an Access Advisor. All accommodations MUST be approved through the Access Center or Disability Services. For more information contact a Disability Specialist at 509-335-3417, Washington Building 217; http://accesscenter.wsu.edu, Access.Center@wsu.edu.

If you have a reasonable request that will help you to be more successful in the class, please talk with the professor.

Academic integrity is the cornerstone of higher education. As such, all members of the university community share responsibility for maintaining and promoting the principles of integrity in all activities, including academic integrity and honest scholarship. Academic integrity will be strongly enforced in this course. Students who violate WSU's Academic Integrity Policy (identified in Washington Administrative Code (WAC) 504-26-010(3) and -404) will receive an F on the work questioned, will not have the option to withdraw from the course pending an appeal, and will be reported to the Office of Student Conduct.

Cheating includes, but is not limited to, plagiarism and unauthorized collaboration as defined in the Standards of Conduct for Students, WAC 504-26-010(3). You need to read and understand all of the definitions of cheating: http://app.leg.wa.gov/WAC/default.aspx?cite=504-26-010. If you have any questions about what is and is not allowed in this course, you should ask course instructors before proceeding.

If you wish to appeal a faculty member's decision relating to academic integrity, please use the form available at conduct.wsu.edu

It is the professor's experience that the most common form of cheating in this class is direct copying of homework from other students or the web. Solutions to homework normally look quite distinct, so two or more assignments with identical phrasing stand out!!!

Classroom and campus safety are of paramount importance at Washington State University, and are the shared responsibility of the entire campus population. WSU urges students to follow the "Alert, Assess, Act," protocol for all types of emergencies and the "Run, Hide, Fight" response for an active shooter incident. Remain ALERT (through direct observation or emergency notification), ASSESS your specific situation, and ACT in the most appropriate way to assure your own safety (and the safety of others if you are able).

Please sign up for emergency alerts on your account at MyWSU. For more information on this subject, campus safety, and related topics, please view the FBI's Run, Hide, Fight video and visit the WSU safety portal.

The Student Success website https://cougarsuccess.wsu.edu/ contains information on a variety of issues from academic advice to dealing with sexual assault. The **aware network** http://aware.wsu.edu/ provides a discreet way for you to request that an appropriate member of the WSU community reaches out to a student you feel may be in difficult situation or crisis.