Prerequisite MATH 137 with a grade of "C" or better or Math 136 with a grade of "A" or Math 142 with a grade of "A".

Professor: Dr. David K. Neal   COHH 4108   745-6213   david.neal@wku.edu

Office Hrs MW 10:40 – 11:20;   T R 11:45 – 12:35; or by appointment

Calculator Students should have a graphing calculator, preferably a TI-84, that can store matrices and perform matrix calculations.

Text No text is required. Course notes will be provided in pdf format at **http://people.wku.edu/david.neal/307/**

Any standard text on linear algebra can be used for further reference.

Course Description **MATH 307** is an introduction to the theory, methods of computation, and applications of Linear Algebra. The course is required for students who major in mathematics (except middle grades mathematics) and it counts toward the minor in mathematics.

The course covers standard material on matrices, systems of equations, *n*-dimensional space, linear transformations, vector spaces, inner product spaces, eigenvalues, and eigenvectors. Supplemental material and *Mathematica* applications will be included.

Learning Outcomes After successfully completing the course, students will
* Be able to solve systems of linear equations
* Be able to prove fundamental theorems about matrices, *n*-dimensional space, linear transformations, vector spaces, and inner product spaces
* Be able to apply matrix methods to solve certain practical problems
* Be able to analyze linear transformations and sets of vectors in R^n
* Understand the concepts of one-to-one, onto, spanning, and linear independence
* Be able to compute determinants, inverses, eigenvalues and eigenvectors of $n \times n$ matrices
* Be able to use a calculator to perform matrix operations
* Have a basic understanding of using *Mathematica* for linear algebra

Attendance Policy

WKU policy states that "Registration in this course obligates you to be regular and punctual in class attendance." Therefore, attendance is required and students are expected to attend class. Unfortunately, there always seems to be students who feel like they can skip class whenever they want to. When that begins to happen, I'm going to start giving in-class pop quizzes that count toward the next test grade. Students who are not in class cannot make up the missed quiz and therefore will see a substantial lowering of their test scores and averages.

Assignments A few problems will be assigned each week that are to be turned in for a grade. On these problems, students are expected to do their own work; plagiarism and allowing plagiarism are not allowed and will result in a grade of 0 for the assignment.

All homework to be turned in should be neat and properly written in a formal mathematical style, with complete details and sentences of explanation are required. Moreover, all equations must be properly aligned with *no scratch outs*. Late homework will not be accepted for credit.

Please use wide margins and spacing so that your work may be read and corrected if necessary. Please do not write in a cramped way or with miniscule lettering.

A few computer assignments with *Mathematica* simulations and exercises may also be assigned. Files will be provided for download online and should be turned in by email.

Exams There will be three in-class exams and a final exam. On test days, please do not bring any open notes into the classroom. If for some reason you are unprepared and need to do last minute cramming, then please do so in the hallway. Please put away your cell phones and other devices before entering the classroom.

Exam Dates

Test 1: Thurs. Sep. 14   **Test 2**: Tue. Oct. 17   **Test 3**: Thurs. Nov. 9
Final Exam: Mon. Dec. 5, 10:30 – 12:30

Grading Scale

The homework and each exam are each worth 20% of your final grade. Final grades will be assigned according to the following scale:

A: Final Average $\geq 93.5\%$ B: $85.5\% \leq$ Final Average $< 93.5\%$

C: $78.5\% \leq$ Final Average $< 85.5\%$ D: $70\% \leq$ Final Average $< 78.5\%$

Make-Up Policy

Students are expected to take the tests *in class* when they are scheduled. I will not accommodate requests to re-schedule exams for students who wish to miss class to go do other activities. But if you must miss an exam due to a *serious, documented* medical cause or tragedy, then I may be able to give you a make-up exam once you leave the hospital.

Withdrawal Date

October 11, 2017 is the last day to withdraw from the course with a grade of W or to change enrollment from credit to audit.

Title IX Misconduct/Assault Statement

Western Kentucky University (WKU) is committed to supporting faculty, staff and students by upholding WKU's Title IX Sexual Misconduct/Assault Policy (#0.2070) at https://wku.edu/eoo/documents/titleix/wkutitleixpolicyandgrievanceprocedure.pdf

and WKU's Discrimination and Harassment Policy (#0.2040) at https://wku.edu/policies/hr_policies/2040_discrimination_harassment_policy.pdf.

Under these policies, discrimination, harassment and/or sexual misconduct based on sex/gender are prohibited. If you experience an incident of sex/gender-based discrimination, harassment and/or sexual misconduct, you are encouraged to report it to the Title IX Coordinator, Andrea Anderson, 270-745-5398 or Title IX Investigators, Michael Crowe, 270-745-5429 or Joshua Hayes, 270-745-5121.

Please note that while you may report an incident of sex/gender based discrimination, harassment and/or sexual misconduct to a faculty member, WKU faculty are "Responsible Employees" of the University and **MUST** report what you share to WKU's Title IX Coordinator or Title IX Investigator. If you would like to speak with someone who may be able to afford you confidentiality, you may contact WKU's Counseling and Testing Center at 270-745-3159.

ADA Accommodation Statement

In compliance with University policy, students with disabilities who require academic and/or auxiliary accommodations for this course must contact the Student Accessibility Resource Center located in Downing Student Union, 1074. SARC can be reached by phone number at 270-745-5004 [270-745-3030 TTY] or via email at sarc.connect@wku.edu . Please do not request accommodations directly from the professor or instructor without a faculty notification letter (FNL) from The Student Accessibility Resource Center.