

Mathematics for Business Analysis – Summer 2024

Course Title: MAT 211 Mathematics for Business Analysis

Credits/Units: 3

Instructor Name: Dr. N. Welcome

Phone: 480-727-1238

Email: nwelcom@asu.edu

Office Hours: by appointment (request a time)

Office Location: Zoom link posted on Canvas page

Catalog Course Description

Topics in business analysis, including: Lagrange multipliers, linear programming, linear algebra, intermediate probability, random variables, discrete distributions, and continuous distributions.

Enrollment Requirements (Prerequisites)

MAT 210, MAT 251, MAT 265 or MAT 270 with C or better

Textbooks

Required: WebAssign access. Purchase necessary within two days of course start date to maintain access – Materials available through our Cengage link found in CANVAS.

Optional: Hard copy Textbook (not utilized) – Finite Mathematics & Applied Calculus, Waner & Costenoble, Cengage Publishing, 7th Edition

Recommended Learning Resources/Materials

Writing utensils and paper appropriate for taking notes and practicing activities TI-83 or TI-84 Graphing Calculator

Lockdown Browser Requirements

This course may require the use of a lockdown browser and a webcam for online exams. Watch [this short video](#) to get a basic understanding of those features and requirements.

Instructor's Philosophy of Education

The purpose of studying mathematics is to enhance problem-solving skills in every aspect of life.

Teaching is repeating until learning takes place
-Michael Smith

Outcomes and Objectives

Upon successful completion of this course, the student will use appropriate tools and technology to demonstrate the following:

Course Outcomes – students will be taught to

- find partial derivatives.
- solve systems of equations across a variety of methods.
- solve constrained optimization problems.
- find probabilities using various methods.
- apply appropriate technology for problem solving.
- predict, interpret, infer, decide.

Course Objectives – students will demonstrate the skill to

- find partial derivatives.
- use the substitution method to solve constrained optimization problems..
- use the Lagrange Multipliers method to solve constrained optimization problems.
- use matrices to solve systems of equations.
- use linear programming to solve problems.
- distinguish between binomial and normal distributions.
- identify measures of central tendency.
- find expected value, variance, and standard deviation of continuous density functions.
- use equation editing software effectively and efficiently.

Grade Distribution

20% Homework
30% Quizzes/Presentation
50% Tests

Grade	Scale	Grade	Scale
A+	97-100	C+	77-79
A	94-96	C	74-76
A-	90-93	C-	70-73
B+	87-89	D+	67-69
B	84-86	D	64-66
B-	80-83	D-	60-63
W	see guidelines	F	<60

Attendance Policy

Students are required to attend class, demonstrated through participation in our virtual classroom. Appropriate participation will be accomplished through completion of homework/quizzes/exams.

The Syllabus Acknowledgement Activity requires enrolled students to acknowledge receipt of the course syllabus no later than the add/drop deadline for the course. The deadline can be identified on the official ASU academic [calendar](#) for the current academic year. Please also consider ASU policy regarding [religious observance](#) and [university sanctioned activities](#). **The instructor reserves the right to remove and/or automatically withdraw/dismiss students for failure to agree to policies, the [student code of conduct](#), and/or lack of appropriate participation.**

WebAssign contains all homework activities and most quizzes, along with their associated due dates. Students must submit work through this program to receive credit for such assigned submissions. Standing grades are maintained in the WebAssign Gradebook and duplicated in Canvas. It is each student's responsibility to monitor grades/scores/averages.

Assignment Submission Expectations

Homework assignments are due each day of the week, Monday through Friday, before midnight. Quizzes are due on the official, final day of class. Advancement to subsequent lessons cannot be accomplished until a required quiz has been completed. Since all lessons are accompanied by instructional videos accessed through our course [YouTube channel](#), students are expected to study independently and meet these deadlines, in the event a class is missed or does not meet. Students **are** permitted to solicit assistance from tutors, other educators, and classmates on presentations, homework, and quizzes. Video recording with a webcam (using an ASU-approved proctoring service) will be required for testing when the instructor assigns virtual exam sessions.

Showing Work

To receive full credit for solutions, using the Show Work feature in WebAssign is required for each quiz and exam problem. No exceptions. Each quiz may be taken up to two times. The highest of two scores will be recorded.

Late Work Policy

Assignments will not be accepted after their scheduled due dates without written permission from the professor. No exceptions. Tests and quizzes will not be accepted past their assigned due dates without prior, written permission. Early submissions are always acceptable. There will be no extra credit available and no assignment submissions beyond the final date of the class.

Plagiarism Policy

Plagiarism, generally, describes representing ideas from an author and presenting them as belonging to someone else. Students who are caught plagiarizing work or allowing others to cheat will receive an "F" for the assignment and will be reported to the college administration. ASU student or government-issued identification may be required on exam days. You may [click here](#) for more information.

Also, to avoid the potential for plagiarism and to uphold the integrity of our course, **tests (Midterm and Final exams) must be taken independently, in the company of the instructor, on the assigned exam date**, unless prior written permission from the professor has been granted.

General Course Schedule and Assignments

Assignment	Due Date	Assignment	Due Date
Syllabus/Course Overview	07/01	Linear Programming Part 5A	07/22
Syllabus Quizzes*	07/02	Linear Programming Part 5B	07/23
Derivatives Review Part 1A	07/03	Sets, Cardinality, and Probability Part 6A	07/24
Happy Independence Day	07/04	Sets, Cardinality, and Probability Part 6B	07/25
Derivatives Review Part 1B	07/05	Quiz 3	07/26
Partial Derivatives Part 2A	07/08	Bernoulli Trials and Binomial Distribution 7A	07/29
Partial Derivatives Part 2B	07/09	Bernoulli Trials and Binomial Distribution 7B	07/30
Quiz 1	07/10	Discrete Continuous Random Variable Part 8A	07/31
Optimization Part 3A	07/11	Discrete Continuous Random Variables Part 8B	08/01
Optimization Part 3B	07/12	Normal Distribution & Probability Density Part 9A	08/02
Matrices Part 4A	07/15	Normal Distribution and Probability Density Part 9B	08/05
Matrices Part 4B	07/16	Project Presentations	08/06
Quiz 2	07/17	Peer Reviews	08/07
Midterm Study Guide*	07/18	Final Exam Study Guide*	08/08
Midterm	07/19	Final	08/09

+Schedule subject to change; major changes to be noted in virtual classroom Announcements section

*Assignment not for credit, thought a significant requirement of the course

Additional Academic Services and Information

You have been granted access to this course because we believe you have the skills to successfully complete the class. However, some students may need additional support to achieve goals and meet expectations. A series of standard and special services are available to meet your needs, including such services as [note-taking assistance](#), [prohibition against various forms of harassment](#), [inclusion](#), and mental health support. Consider the following or [click here](#) for a list of additional resources:

Student Success Centers

Arizona State University offers free tutoring services for enrolled students. These services include convenient locations for in-person tutoring, as well as online tutoring, in addition to testing support services. Visit [click here](#) for more information.

Disabilities Resource Center

Arizona State University provides services to qualified students with disabilities on all of our campuses. For convenience, students will find offices located at the Downtown, Polytechnic, Tempe, and West locations. You may contact 480-965-1234 or visit [click here](#) for more information.

Additional Campus Resources:

[Careers Services](#)

[Counseling Services](#)

[Disability Resources](#)

[Financial Aid](#)

[International Student Support](#)

[Major and Career Exploration](#)

[Police](#)

[Student Organizations](#)

[Tutoring](#)

[Writing Centers](#)

Syllabus Disclaimer

This syllabus serves as an educational contract between the instructor and students. The instructor reserves the right to make necessary changes, though every effort will be made to avoid changes. Additionally, changes will be advised through CANVAS announcements.

Statement of Inclusion

Arizona State University is deeply committed to positioning itself as one of the great new universities by seeking to build excellence, enhance access and have an impact on our community, state, nation and the world. To do that requires our faculty and staff to reflect the intellectual, ethnic and cultural diversity of our nation and world so that our students learn from the broadest perspectives, and we engage in the advancement of knowledge with the most inclusive understanding possible of the issues we are addressing through our scholarly activities. We recognize that race and gender historically have been markers of diversity in institutions of higher education. However, at ASU, we believe that diversity includes additional categories such as socioeconomic background, religion, sexual orientation, gender identity, age, disability, veteran status, nationality and intellectual perspective.

Title IX

Title IX is a federal law that provides that no person be excluded on the basis of sex from participation in, be denied benefits of, or be subjected to discrimination under any education program or activity. Both Title IX and university policy make clear that sexual violence and harassment based on sex is prohibited. An individual who believes they have been subjected to sexual violence or harassed on the basis of sex can seek support, including counseling and academic support, from the university. If you or someone you know has been harassed on the basis of sex or sexually assaulted, you can find information and resources at sexualviolenceprevention.asu.edu/faqs.

“As a mandated reporter, I am obligated to report any information I become aware of regarding alleged acts of sexual discrimination, including sexual violence and dating violence. ASU Counseling Services, eoss.asu.edu/counseling, is available if you to wish discuss any concerns confidentially and privately.”

Prohibition of Harassment

ASU policy prohibits harassment on the basis of race, sex, gender identity, age, religion, national origin, disability, sexual orientation, Vietnam era veteran status, and other protected veteran status. Violations of this policy may result in disciplinary action, including termination of employees or expulsion of students. Contact the professor if you are concerned about online harassment of any kind, and he/she will put you in contact with the Dean of Students office.

Student Code of Conduct

Students are required to adhere to the behavior standards listed in the Arizona Board of Regents Policy Manual Chapter V–Campus and Student Affairs: Code of Conduct located online at students.asu.edu/srr/code and the ACD 125: Computer, Internet, and Electronic Communications available at asu.edu/aad/manuals/acd/acd125.html.

Students are entitled to receive instruction free from interference by other members of the class. An instructor may withdraw a student from a course when the student’s behavior disrupts the educational process under USI 201-10 asu.edu/aad/manuals/ssm/ssm201-10.html. An instructor may withdraw a student from a course with a mark of “W” or “E” when the student’s behavior disrupts the educational process. Disruptive classroom behavior for this purpose is defined by the instructor.

Mental Health Awareness

Students potentially experience a range of challenges that can interfere with learning, such as strained relationships, increased anxiety, substance use, difficulty concentrating and/or lack of motivation. These emotional health concerns or stressful events may diminish your academic performance and/or reduce your ability to participate in daily activities. ASU Counseling Services provides counseling and crisis services for students who are experiencing a mental health concern. Any student may call or walk-in to any ASU counseling center for a same day or future appointment to discuss any personal concern. Here is the Web site: eoss.asu.edu/counseling. After office hours and 24/7 ASU's dedicated crisis line is available for crisis consultation by calling 480-921-1006.

Students with Disabilities

If you need academic accommodations or special consideration of any kind to get the most out of this class, please let me know at the beginning of the course. If you have a disability and need a reasonable accommodation for equal access to education at ASU, please call Disability Resources for Students (DRC). The site can be found at eooss.asu.edu/drc. Instructors cannot provide accommodations without authorization from the DRC.

Downtown Phoenix Campus

University Center building, Suite 160

Phone: 602.496.4321

E-mail: DRCDowntown@asu.edu

Polytechnic Campus

Sutton Hall - Suite 240

Phone: 480.727.1039

E-mail: DRCPoly@asu.edu

Tempe Campus

Matthews Center building, 1st floor

Phone: 480.965.1234

E-mail: DRCTempe@asu.edu

West Campus

University Center Building, Room 130

Phone: 602.543.8145

E-mail: DRCWest@asu.edu

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-Michael Smith*