

# MATH 1191: Introduction to Mathematical Modeling, Spring 2021

## Contact Information

**Instructor:** Karl Havlak  
**Office:** MCS 220A  
**Office Phone:** (325) 486-5432  
**e-mail:** [Karl.Havlak@angelo.edu](mailto:Karl.Havlak@angelo.edu)

### Office Hours:

10:30 – 11:30 a.m., 1:00 – 2:00 p.m., MTWRF;  
*or by appointment*

You can come by my office, but I can only have two students in my office at a time. You can access my virtual office hours by clicking [here](#)<sup>i</sup>. If you do not have a microphone on your computer, you can call in for sound using 1-571-392-7650, PIN: 584 117 7770.

## Textbook

*Mathematical Models in Biology* by Leah Edelstein-Keshet. Course materials will be provided.

## Blackboard

This course has an associated [Blackboard page](#)<sup>ii</sup> where you will have access to grades, assignments, videos, handouts, and other course-related items.

## Course Content

This course will be an introduction to mathematical modeling as applied to biological processes. Discrete and continuous modeling techniques will be examined. Activities will include discussions of models, working through textbook exercises, and a review of a scholarly article on mathematical modeling in biology.

## Course Grade

The final average will be determined by your attendance and grades on weekly assignments.

## Homework Policy

Homework will be assigned after most class meetings. Student presentations of homework may be required.

## Exams

There will be no exams in this course.

## Attendance

Attendance is mandatory.

## Student Responsibilities

The student is *solely* responsible for:

- Completing each assignment by the specified due date.
- Obtaining assignments and other materials for classes from which they are absent.
- Utilizing, as needed, all available study-aid options (including meeting with the instructor, referring to outside texts, etc.) to resolve any questions that they might have regarding homework, course material, etc.

- Realizing from the beginning of the course the grade that they may need or want to graduate, maintain a scholarship, stay in athletics, etc. ... and give as much effort as it takes to obtain this grade.
- This syllabus may change if the course format is changed due to health concerns.

### **Masks/Facial Coverings Policy**

As a member of the Texas Tech University System, Angelo State University has adopted the mandatory [Facial Covering Policy](#)<sup>iii</sup> to ensure a safe and healthy classroom experience. Current research on the COVID-19 virus suggest there is a significant reduction in the potential for transmission of the virus from person to person by wearing a mask/facial covering that covers the nose and mouth areas. Therefore, in compliance with the university policy, students in this class are required to wear a mask/facial covering before, during, and after class. Faculty members may also ask you to display your daily screening badge as a prerequisite to enter the classroom. You are also asked to maintain safe distancing practices to the best of your ability. For the safety of everyone, any student not appropriately wearing a mask/facial covering will be asked to leave the classroom immediately. The student will be responsible to make up any missed class content or work. Continued non-compliance with the Texas Tech University System Policy may result in disciplinary action through the Office of Student Conduct.

### **Student Disability Services**

ASU is committed to the principle that no qualified individual with a disability shall, on the basis of disability, be excluded from participation in or be denied the benefits of the services, programs or activities of the university, or be subjected to discrimination by the university, as provided by the Americans with Disabilities Act of 1990 (ADA), the Americans with Disabilities Act Amendments of 2008 (ADAAA), and subsequent legislation.

Student Disability Services is located in the Office of Student Affairs, and is the designated campus department charged with the responsibility of reviewing and authorizing requests for reasonable accommodations based on a disability. It is the student's responsibility to initiate such a request by contacting an employee of the Office of Student Affairs, in the Houston Harte University Center, Room 112, or contacting the department via email at [ADA@angelo.edu](mailto:ADA@angelo.edu). For more information about the application process and requirements, visit the [Student Disability Services website](#)<sup>iv</sup>. The employee charged with the responsibility of reviewing and authorizing accommodation requests is:

Dallas Swafford  
Director of Student Disability Services  
Office of Student Affairs  
325-942-2047  
[dallas.swafford@angelo.edu](mailto:dallas.swafford@angelo.edu)  
Houston Harte University Center, Room 112

### **Title IX at Angelo State University**

The University prohibits discrimination based on sex, which includes pregnancy, sexual orientation, gender identity, and other types of Sexual Misconduct. Sexual Misconduct is a broad term encompassing all forms of gender-based harassment or discrimination including: sexual assault, sex-based discrimination, sexual exploitation, sexual harassment, public indecency, interpersonal violence (domestic violence and/or dating violence), and stalking. As

a faculty member, I am a Responsible Employee meaning that I am obligated by law and ASU policy to report any allegations I am notified of to the Office of Title IX Compliance.

Students are encouraged to report any incidents of sexual misconduct directly to ASU's Office of Title IX Compliance and the Director of Title IX Compliance/Title IX Coordinator at:

**Michelle Miller, J.D.**

*Special Assistant to the President and Title IX Coordinator*

Mayer Administration Building, Room 210

325-486-6357

[michelle.boone@angelo.edu](mailto:michelle.boone@angelo.edu)

**You may also file a report online 24/7 at the [Title IX website](#)<sup>v</sup>.**

If you are wishing to speak to someone about an incident in confidence you may contact the *University Health Clinic and Counseling Center* at 325-942-2173 or the *ASU Crisis Helpline* at 325-486-6345.

For more information about Title IX in general you may visit the [ASU Title IX website](#)<sup>vi</sup>.

### **Student Absence for Observance of Religious Holy Days**

A student who intends to observe a religious holy day should make that intention known in writing to the instructor prior to the absence. The full details can be found in ASU Operating Policy OP 10.19 [Observance of Religious Holy Days](#)<sup>vii</sup>.

### **Incomplete Grade Policy**

It is policy that incomplete grades be reserved for student illness or personal misfortune. Please contact faculty if you have serious illness or a personal misfortune that would keep you from completing course work. Documentation may be required. See ASU Operating Policy 10.11 [Grading Procedures](#)<sup>viii</sup> for more information.

## **Student Conduct Policies**

### **Academic Integrity**

Students are expected to maintain complete honesty and integrity in all work. Any student found guilty of any form of dishonesty in academic work is subject of disciplinary action and possible expulsion from ASU.

The College of Science and Engineering adheres to the [Statement of Academic Integrity](#)<sup>ix</sup>

### **Plagiarism**

Plagiarism is a serious topic covered in ASU's [Academic Integrity policy](#)<sup>x</sup> in the Student Handbook. Plagiarism is the action or practice of taking someone else's work, idea, etc., and passing it off as one's own. Plagiarism is literary theft.

In your discussions and/or your papers, it is unacceptable to copy word-for-word without quotation marks and the source of the quotation. It is expected that you will summarize or paraphrase ideas giving appropriate credit to the source both in the body of your paper and the reference list.

Papers are subject to be evaluated for originality via Turnitin. Resources to help you understand this policy better are available at the [ASU Writing Center](#)<sup>xi</sup>.

## **Copyright Policy**

Students officially enrolled in this course should make only one printed copy of the given articles and/or chapters. You are expressly prohibited from distributing or reproducing any portion of course readings in printed or electronic form without written permission from the copyright holders or publishers.

## **General Policies Related to this Course**

- All students are required to follow the policies and procedures presented in these documents:
  - [Angelo State University Student Handbook](#)<sup>xii</sup>
  - [Angelo State University Catalog](#)<sup>xiii</sup>
- In the event that the university is closed for a scheduled class time, whatever was scheduled for that day and/or whatever was due that day will be scheduled and/or due on the next scheduled class time.
- All electronic correspondence will be sent to your ASU e-mail account unless other arrangements are made.
- Feel free to come by my office at any time for help. I will definitely be near my office during my office hours (or there will be a note telling you when I will be back). If my office hours are not convenient for you, meet with me to arrange for another time that is more convenient.
- Good luck. I sincerely hope you do well in this course, and I strongly encourage you to use me as a resource outside of class to help you succeed.

**All items contained in this syllabus are subject to change as the semester progresses. Students will be notified in advance of any changes.**

## Anticipated Topics

- Theory of Linear Difference Equations
- Nonlinear Difference Equations
- Applications of Difference Equation Models
- Continuous Models
- Introduction to Differential Equations
- Phase-Plane Methods and Qualitative Solutions
- Applications of Continuous Models
- Models for Molecular Events (if time permits)
- Limit Cycles, Oscillations, and Excitable Systems (if time permits)

---

i Virtual Office Hours: <https://us.bbcollab.com/guest/d57fc5e961dc47838574191d1272995c>

ii Blackboard Link: <http://blackboard.angelo.edu>

iii Mask/Facial Covering Policy: <http://www.texastech.edu/downloads/ttus-policy-face-coverings.pdf>

iv Student Disability Services Link: <https://www.angelo.edu/current-students/disability-services/>

v ASU Title IX Incident Form: <http://www.angelo.edu/incident-form>

vi ASU Title IX Website: <http://www.angelo.edu/title-ix>

vii Observance of Religious Holy Days: <http://www.angelo.edu/content/files/14206-op-1019-student-absence-for-observance-of>

viii Grading Procedures: <http://www.angelo.edu/content/files/14197-op-1011-grading-procedures>

ix Academic Integrity: <https://www.angelo.edu/live/files/27603-student-handbook-2020-21#page=96>

x Plagerism: <https://www.angelo.edu/live/files/27603-student-handbook-2020-21#page=96>

xi ASU Writing Center: [https://www.angelo.edu/current-students/writing-center/academic\\_honesty.php](https://www.angelo.edu/current-students/writing-center/academic_honesty.php)

xii Student Handbook: <https://www.angelo.edu/current-students/student-handbook/>

xiii University Catalog: <http://www.angelo.edu/catalogs/>