Math 1151: Mathematical Technology

Disclaimer
This syllabus is current and accurate as of its posting date, but will not be updated. For the most complete and up-to-date course information, contact the instructor.

Instructor Information
Dr. Dionne T. Bailey
Office: MCS 220G
Phone: 325-486-5425
Email: Dionne.Bailey@angelo.edu

Office Hours

<table>
<thead>
<tr>
<th>Day</th>
<th>Time</th>
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<tbody>
<tr>
<td>Monday</td>
<td>11:00-12:00; 2:00-4:00</td>
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<tr>
<td>Tuesday</td>
<td>2:00-4:00</td>
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<tr>
<td>Wednesday</td>
<td>11:00-12:00; 2:00-4:00</td>
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<tr>
<td>Thursday</td>
<td>2:00-4:00</td>
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Attendance
Regular attendance is important since much of what we cover involves hands-on computer work. Unexcused absences will result in deductions from the attendance grade.

Daily Work
Daily work will consist primarily of computer assignments made available on Blackboard, supplemented by some in-class quizzes. In-class quizzes cannot be rescheduled for any reason, including absences. Assignments turned in late will generally not be accepted for full credit, if for any credit at all.

Grade Calculations
Your attendance grade will count for 15%, your grade on the daily work will count for 70%, and the final project will count for 15%; then the usual grades (90 and above $\leftrightarrow$ A, 80-89 $\leftrightarrow$ B, 70-79 $\leftrightarrow$ C, 60-69 $\leftrightarrow$ D, and less than 60 $\leftrightarrow$ F).

Student Learning Outcomes
1. **The students will demonstrate factual knowledge.** Students will utilize the specific functions and commands for producing mathematical documents. Students will also utilize specific functions and commands from the program MATLAB.
2. **The students will apply the fundamental aspects of mathematical technology.** Students will use contemporary software to study a variety of mathematical problems such as those involving algebraic equations, probability simulations, curve fitting,
iteration and recursion, area and volume computations, and matrix applications. Students will also represent data and functions using visual aids such as two-dimensional plots with linear and logarithmic scales, scatter plots, histograms, three-dimensional surface plots, contour plots, and animations.

3. **The students will apply course material to solve problems.** Students will implement algorithms for analyzing and solving mathematical problems, using an appropriate high-level programming language.

4. **The students will develop specific skills, competencies, and thought processes sufficient to support further use of mathematical technology.** Students will solve problems, represent solutions, and develop algorithms using software.

**Required Texts and Readings**
Course notes and other course materials are available on Blackboard.

**Subject Matter**
This course is intended to familiarize students with a variety of software for mathematical computation, while also introducing some interesting mathematical topics. The subject matter schedule listed below is tentative, and subject to change and adaptation. For current, updated information about course topics, contact the instructor.

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<tr>
<th>Day</th>
<th>Activity</th>
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<td>1</td>
<td>4.1 Introduction to MATLAB</td>
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<td>2</td>
<td>4.2 Iteration and Anonymous Function</td>
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<td>3</td>
<td>4.3 Working with Vectors I</td>
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<tr>
<td>4</td>
<td>4.4 Working with Vectors II</td>
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<td>5</td>
<td>4.5 Scripts, Cells, and Publishing I</td>
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<tr>
<td>6</td>
<td>4.6 Scripts, Cells, and Publishing II</td>
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<tr>
<td>7</td>
<td>4.7 Basics of 2D Plotting</td>
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<td>8</td>
<td>4.8 “for” Loops: Part 1</td>
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<tr>
<td>9</td>
<td>4.9 “for” Loops: Part 2</td>
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<tr>
<td>10</td>
<td>4.12 Linear Least-Squares Approximation</td>
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<td>Day</td>
<td>Activity</td>
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<tr>
<td>11</td>
<td>4.13 Nonlinear Least-Squares Curve Fitting</td>
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<td>12</td>
<td>Additional MATLAB Topic</td>
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<td>13</td>
<td>Final Project</td>
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<td>14</td>
<td>Final Project</td>
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<td>15</td>
<td>Additional MATLAB Topic</td>
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<tr>
<td>16</td>
<td>Additional MATLAB Topic&lt;br&gt;Final Project Due</td>
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**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.

The Office of Student Affairs is the designated campus department charged with the responsibility of reviewing and authorizing requests for reasonable accommodations based on a disability, and it is the student’s responsibility to initiate such a request by contacting:

Dallas Swafford  
Director of Student Disability Services  
Office of Student Affairs  
325-942-2047  
dallas.swafford@angelo.edu

**Title IX**

Angelo State University is committed to the safety and security of all students. If you or someone you know experience sexual harassment, sexual assault, domestic or dating violence, stalking, or discrimination, you may contact ASU’s Title IX Coordinator:

Michelle Boone  
Director of Title IX Compliance  
325-486-6357  
michelle.boone@angelo.edu
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.

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 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.

Plagiarism

Plagiarism is a serious topic covered in ASU’s Academic Integrity policy 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.

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
• Angelo State University Catalog

http://www.angelo.edu/content/files/14206-op-1019-student-absence-for-observance-of
http://www.angelo.edu/content/files/14197-op-1011-grading-procedures
http://www.angelo.edu/student-handbook/community-policies/academic-integrity.php
http://www.angelo.edu/student-handbook/community-policies/academic-integrity.php
http://www.angelo.edu/dept/writing_center/academic_honesty.php
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http://www.angelo.edu/catalogs/