Department of Agricultural Sciences
College of Sciences and Engineering Technology
Sam Houston State University

Introduction to Agricultural Mechanization and Engineering

AGRI 2303

Fall 2017 Syllabus

Part 1: Course Information

Instructor Information

Instructor: Dr. P. Ryan Saucier, Office: HAETC 106 and Pirkle 440C
Lecture Time(s): Section 1 = Monday/Wednesday 10 – 10:50 a.m., HATEC 100; Section 2 = Tuesday/Thursday 9:30 a.m. – 10:20 p.m., HATEC 100
Laboratory Time(s): Section 3 = Tuesday, 1- 2:50 p.m.; Section 4 = Tuesday, 3 – 4:50 p.m.; Section 5 = Wednesday, 1 - 2:50 p.m.
Virtual Office Forum: Available 24/7 for posting/viewing questions
Office Hours: Monday: 9 - 10 a.m., 1-3 p.m.; Tuesday: 9 to 9:30 a.m., Wednesday: 9 - 10 a.m. & 3 – 5 p.m.; Thursday 9 – 9:30 a.m.
Email: ryansaucier@shsu.edu
Office Telephone: 936-294-4883 **Cell:** 936-581-3457

Course Description

Introduction to current and emerging topics and industry related to agricultural engineering technology. Topics covered include: bio-diesel, wind energy, GPS/GIS applications, nanotechnology, theory of the fusion of metals, efficiency of internal combustion engines, and other technology-related subjects. Credit 3.

Textbook & Course Materials

Required Text

- Herren, R.V. (2015). *Agricultural mechanics: Fundamentals and applications* (7th ed.), Cengage Learning. Stamford, CT. ISBN # 978-1-285-05895-5
- Course Packet at Eagle Graphics, AGET 2303 - Saucier

Recommended Texts & Other Readings

- Other resources posted on Blackboard or handed out in lecture or lab

Course Structure

This course will be delivered in person through lecture and laboratory. Some portions of the course may be delivered through the course management system Blackboard™. You will use your SHSU account to login to the course from the Blackboard login page (http://shsu.blackboard.edu).

In Blackboard, you may access online lessons, course materials, and resources. At designated times throughout the semester, we will participate in a blend of self-paced and group-paced activities using Backboard and additional internet-based technologies. Activities may consist of chat, blogs, discussion forums, journaling, wikis, and web postings.

Technical Requirements

You must have access to a personal computer or a computer in which you have administrative rights so that you may install necessary plugins. See the Technical Requirements website for recommended system and browser requirements.

- Internet connection (DSL, LAN, or cable connection is desirable)
- An active SHSU Student Username and Password
- Webcam and headset (headphone/microphone combo) – Using headphones will eliminate the echoing effect of the microphone picking up audio from the computer speakers during live discussions.

Technical Assistance

The team at SHSU Online provides technical support for Blackboard through a variety of methods.

Website: Technical Support http://distance.shsu.edu/tech-support

Phone: 936-294-2780 – or – toll free 1-877-759-2232

Email: blackboard@shsu.edu or you can chat with a technician while inside your Blackboard course.

Below are some helpful resources if you wish to explore on your own.

- New students should start with the Online Student Orientation
  http://distance.shsu.edu/current-students/orientation.html
- A list of other helpful services can be found on the Student Resources page
  http://distance.shsu.edu/current-students/resources.html
- Blackboard Learn™ provides a variety of video tutorials at Student Videos
  https://help.blackboard.com/en-us/Learn/Reference/Blackboard_Learn_Videos/Student_Videos

Part 2: Course Objectives

- Careers in agricultural systems management
- Laboratory organization and safety
- Hand and power tools, fasteners, and hardware
- Agricultural structures
- Arc Welding (SMAW)
- Oxygen Acetylene Cutting (OAC) and Oxygen Acetylene Welding (OAW)
- Painting and preservation of materials
- Drafting
- Small Gas Engines (SGE) and Power and Machinery Technology
- Electricity and Electric Motors
- Plumbing
- Irrigation
- Concrete

You will meet the objectives listed above through a combination of the following activities in this course:

Lecture	
Exams (2) x 100 points each =	200 points
Quizzes (4) x 25 points each =	100 points
Research Paper (**Due November 1 (*1*) or 2 (*2*), 2017)**	100 points
Laboratory	
Shielded Metal Arc Welding Project	100 points
Oxygen Acetylene Cutting Project	100 points
Structures Lab Project	100 points
Concrete Technology Lab	50 points
Measuring and Surveying Lab	50 points
Drafting/BOM Project	50 points
Electricity Lab	50 points
Power and Machinery Technology Lab	50 points
Irrigation/ Plumbing Lab	50 points
Total Points =	**1000 points**

Final Grade Assignment

A = 891 - 1000 B = 791 - 890 C = 691 - 790 D = 591 - 690 F = 590 or less

*** There will be no make-up labs without a doctor's note, funeral notice, or other notable event

Part 3: Topic Outline/Schedule

Important Note: Refer to the course calendar for specific meeting dates and times. Activity and assignment details will be explained in detail within each week's corresponding learning module.

Class Schedule, Lab Schedule, and Reading Assignments

Wk	Date(s)	Lecture Topic	Assigned Reading	Laboratory Topic
1	8/23-24/17	Introduction Careers in AET/Agriculture	Unit(s) 1, 2	Buy PPE and Supplies
2	8/28-9/1/17	Safety and Organization	Unit(s) 3,4, 5, 6	(A)Drafting (B)Structures
3	9/5-8/17	Sketching and Drawing Projects Figuring a Bill of Materials Selecting, Planning, and Building a Project, Agricultural Structures	Unit(s) 18,19, 20, 41	**(A)Drafting** **(B)Structures**
4	9/11-15/17	Hand and Power Tools **Quiz # 1**	Unit (s) 7, 14, 15, 16, & 17	(A)Structures (B) Drafting
5	9/18-22/17	Fasteners & Hardware Layout Tools and Procedures Surveying	Unit(s) 7, 8, Handouts	**(A)Structures** **(B) Drafting**
6	9/25-29/17	Selecting, Cutting, & Shaping Wood Fastening Wood**,** Finishing Wood, Preparing Wood and Metal for Painting Selecting and Applying Painting Materials	Unit(s) 9, 10, 11, 28, & 29	**Measurement & Surveying Lab**
7	10/2-6/17	Plumbing, Irrigation **Quiz # 2**	Unit(s) 37 & 38	**Plumbing/ Irrigation**
8	10/9-13/17	Power Mechanics **Mid Term Exam # 1**	Unit(s) 30, 31, 32	**Power and Machinery Technology**
9	10/16-20/17	Power Mechanics Concrete Technology	Unit(s) 30, 31, 32, 40	**Electricity/Concrete**
10	10/23-27/17	Electricity	Unit(s) 33,34,35, 36	(A) SMAW (B) OAC/B/W
11	10/30-11/3/17	Electricity SMAW **Research Papers Due 11/1 (Section 1) & 11/2 (Section 2)**	Unit(s) 26, 27, 33, 34, 35, 36	(A) SMAW (B) OAC/B/W
12	11/6-10/17	SMAW **Quiz # 3**	Unit(s) 26 & 27	**(A) SMAW** **(B) OAC/B/W**

Class Schedule, Lab Schedule, and Reading Assignments				
Wk	Date(s)	Lecture Topic	Assigned Reading	Laboratory Topic
13	11/13-17/17	SMAW OAC/W/B	Unit(s) 23, 24, 25, 26, 27	(B) SMAW (A) OAC/B/W
14	11/20-21/17	OAC/W/B	Unit(s) 23, 24, 25	(B) SMAW (A) OAC/B/W
15	11/27-12/1/17	OAC/W/B **Quiz # 4**	Unit(s) 23, 24, 25	**(B) SMAW** **(A) OAC/B/W**
16	**Section 1 Lecture, Final Exam, 12/4/2017 from 10:30 a.m. – 12:30 p.m.** **Section 2 Lecture, Final Exam, 12/7/2017 from 9:30 – 11:30 a.m.**			

Part 4: Grading Policy

Graded Course Activities

Late Work Policy

Be sure to pay close attention to deadlines-there will be **NO make-up assignments, quizzes, or other course materials accepted beyond the due date without instructor approval and advanced notification.**

Viewing Grades in Blackboard

Points you receive for graded activities will be posted to the Blackboard Grade Center. Your instructor will update the online grades each time a grading session has been complete—typically 7 days following the completion of an activity. **However, research papers may take longer to grade.** Click on the My Grades link in the left navigation pane to view your points.

Letter Grade Assignment

Include an explanation between the relationship of points earned and final letter grade. Example: Final grades assigned for this course will be based on the percentage of total points earned and are assigned as follows:

Letter Grade	Percentage	Performance Level
A	89.1-100%	Excellent Work
B	79.1-89.0%	Good Work
C	69.1-79.0%	Average Work
D	59.1-69.0%	Poor Work
F	0-59.0%	Failing Work

Assignments

1. **Exams –** each exam can consist of: multiple choice, short answer, essay, and hands-on technical questions. The student will have 50 minutes to complete each exam. Students are encouraged to e-mail the instructor sample questions for each exam. **These sample questions are worth an additional 5 points** on each exam and must be in **multiple choice format** (***4 answer choices, the correct answer must be indicated, and you must give reference to where you found the correct answer, i.e. Textbook Title & pg. # or Power Point Title & Slide #.***). Sample questions must be emailed to Dr. Saucier **no later than 48 hours prior to the exam** for credit. Each exam is worth 100 points. There will be two exams, a mid-term and a final exam. If you are happy with your course grade prior to the final exam, you **DO NOT** have to take the final exam!

2. **Quizzes –** each quiz can consists of: multiple choice, short answer, essay, and hands-on technical questions. The student will have 20 minutes to complete each quiz, worth 25 points each. A total of 4 quizzes worth a total of 100 points. These may be delivered in an online format.

3. **Research Paper -** each student will write a research paper about emerging agricultural systems technology. This paper will be **due November 1** ***(1)*** **or November 2** ***(2)*****, 2017 at the start of lecture.** This paper is worth 100 points.

4. **Labs** – each student will attend each lab, read the instructions, and complete the lab. Labs involving projects will be graded using a rubric. Each student will complete their own work. See rubric for grading details. (Points vary per lab)

Service Learning Opportunities

This course involves service to the community with opportunities to participate in activities outside of lecture and lab for extra credit. For students to gain extra credit, students are **required to complete 10 hours of work towards these projects**. These events will be announced throughout the semester. **Of the 10 required hours, 6 must be completed at the SHSU HAET Center**. The **remaining 4 may be completed with a preapproved activity** and location such as a LDE or CDE. Also, students may undertake a preapproved independent project that will enhance the SHSU HAET Center or the local community. Students may earn up to 100 points through service learning.

Drafting Project Rubric

Item	Points Possible	Earned Points
Correct use of border lines	5	
Correct use of hidden lines	5	
Correct use of dimension lines	5	
Correct use of object line	5	
Correct use of dimensions	10	
Correct title block • Name of drafter • Date of draft • Title of project • Scale	10	
End view	10	
Top view	10	
Side view	10	
Bottom view	10	
Cleanliness of drawing	10	
Bill of Materials (computer generated)	10	
Total Points Earned	100	

Note. The object of this exercise is for the student to learn drafting and for this draft to be accurate enough to reproduce the project at a later date.

Individual Project -Tool Box Project Rubric

* see handout for plans and instructions

Item	Points Possible	Points Earned
Correct measurements of boards	20	
Properly placed fasteners at joints	20	
Boards are flush with one another	10	
Handle is correctly marked and measured	20	
Handle is correctly cut and drilled	10	
Overall finish	10	
Safety	10	
Total Points Earned	100	

Note. Students will lose 2 points per safety violation in the laboratory. Students will be notified to correct this behavior.

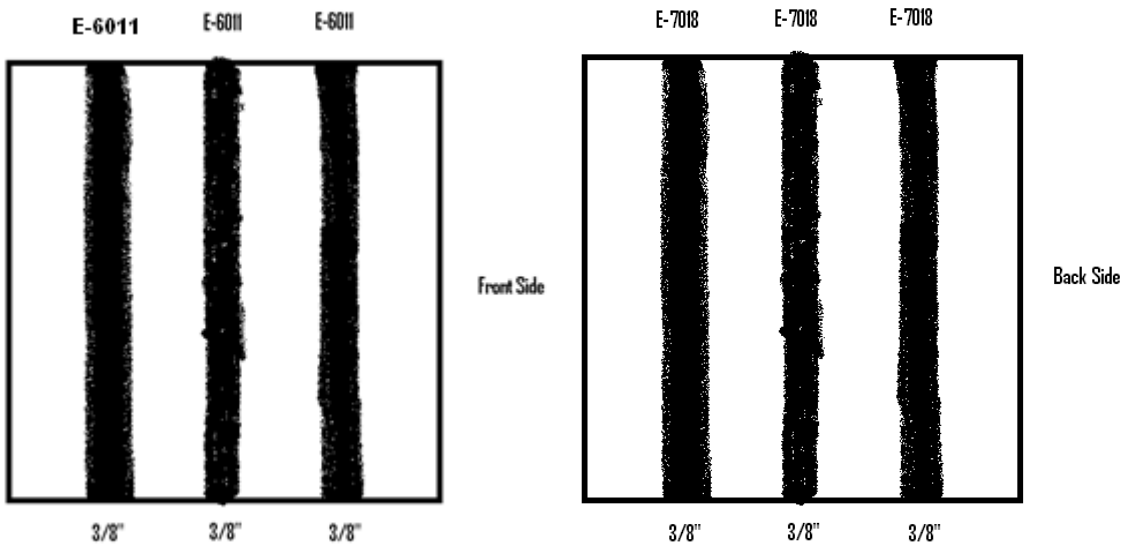
Group Project - Storage Pallet Project Rubric

* see handout for plans and instructions

Item	Points Possible	Points Earned
Correct measurements/ cuts of all pieces	10	
Properly placed fasteners at all joints	10	
Boards are flush with one another	10	
Lid is correctly marked, measured, and built	10	
Boards are square with one another	10	
Overall finish	10	
Safety (wore PPE, no unsafe acts)	10	
Ability to work in a team environment	10	
Peer Evaluation Average	20	
Total Points Earned	100	

Note. Students will lose 2 points per safety violation in the laboratory. Students will be notified to correct this behavior.

SMAW Project Rubric



* Each student will be given 2 pieces of 2"x 4" x ¼" Steel Angle Iron and will construct the following teaching aid as directed.

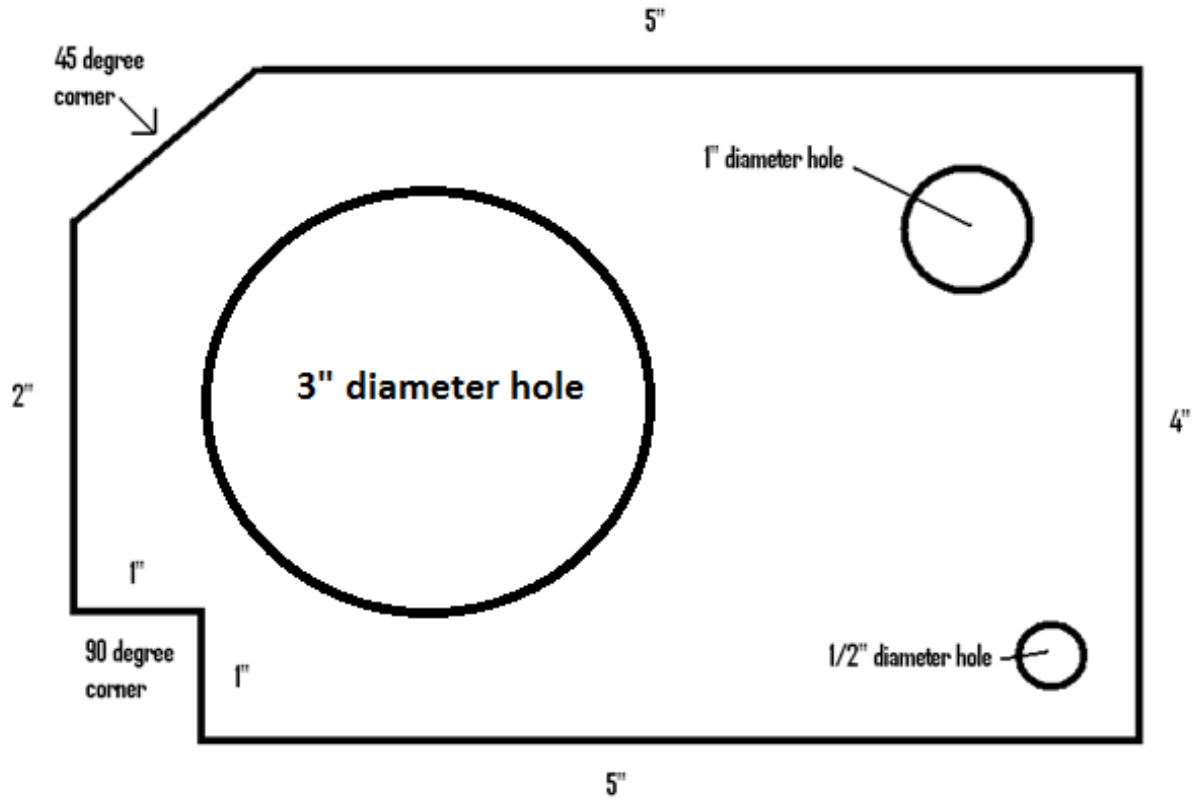
Item	Possible Points	Points Earned
6011 - Flat, Horizontal	20	
6011 – Flat, Horizontal (Butt Weld)	20	
6011 – Vertical Up	5	
7018 - Flat, Horizontal	20	
7018 – Flat, Horizontal (Butt Weld)	20	
7018 – Vertical Up	5	
Student Safety	10	
Total Points Earned	100	

Note. Students will lose 5 points per safety violation in the laboratory. Students will be notified to correct this behavior.

Oxy/Fuel Cutting/Bending/Welding Project Grading Rubric

* Each student will cut 1 piece of 4" x 6" x ¼" plate

Item	Possible Points	Points Earned
Angles cut to correct specifications	20	
Steel plate/pipe cut to correct specifications	30	
Holes cut to correct specifications	20	
Quality of cut	20	
Safety	10	
Total Points Earned	100	



Emerging Technology Paper Grading Rubric

Name:	Possible Points	Points Earned
Grading Criteria		
Content of the Project (3-5 pages plus cover page and references)		
• Did the author explain the process/research/technology?	20	
• Did the author explain the impact of the process/research/technology?	20	
• Did the author discuss the future of the process/research/technology and any challenges associated with the process/research/technology?	20	
Additional Materials Provided for the Project		
• Variety (Handout, pictures, etc.)	10	
• Accuracy of information (Was the information up to date and not dated?; No older than 5 years)	10	
Quality of Writing		
• Grammar, Punctuation, Spelling	5	
• Organization (APA, 6th ed.)	5	
• References (minimum of 5)	10	
Total Points	100	

Paper Format

- 12 point font, Times New Roman, 1" margins all sides, single spaced, APA 6th edition formatting
- Students may use up to a ½ page of pictures in the paper to explain the process/research/technology or place them as an appendices at the end of the paper
- Students must use in citations in the text and list these citations on a reference page in alphabetical order per APA style
- No abstract is needed for this paper
- 5 additional points added for peer review and edits
- 5 additional points if paper is reviewed by the SHSU Writing Center

Example of an APA Style Reference Page

References

Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory*.

Englewood Cliffs, N.J.: Prentice Hall.

Bandura, A. (1997). *Self-efficacy: The exercise of control*, New York, NY: W.H. Freeman.

Borich, G. D. (1980). A needs assessment model for conducting follow-up studies. *The Journal of Teacher Education, 31*(3), 39-42. doi: 10.1177/002248718003100310

Burris, S., Robinson, J. S., & Terry, Jr., R. (2005). Preparation of preservice teachers in agricultural mechanics. *Journal of Agricultural Education, 46*(3), 23–34. doi:10.5032/jae.2005.03023

Center for Agricultural and Environmental Research and Training, Inc. (n.d.) *New Mexico curriculum center*. Retrieved from: http://www.caert.net/estore1/statecurriculum/New%20Mexico/default.asp

Cohen, J. (1988). *Statistical Power Analysis for the Behavioral Sciences* (2nd ed.). Hillsdale, NJ: Lawrence Erlbaum Associates.

Example(s) of In-Text Citiations:

Summary of Concpets, Ideas, or Written Word:

These professionals include school-based agricultural educators who must possess the knowledge and skills needed to prepare a diverse workforce to address societal and industry challenges (Doerfert, 2011).

Harlin, Roberts, Dooley, and Murphrey (2007) found that the skills and knowledge required of these teachers far exceed those of secondary teachers who instruct other academic subject matter.

Direct Quote of Work:

This area of school-based instruction has been noted as an important component of “any high quality agricultural education program” (Phipps, Osborne, Dyer, & Ball, 2008, p. 303).

Part 5: Course Policies

Attendance

Regular and punctual class attendance is expected of each student at Sam Houston State University. This course will consist of both synchronous (scheduled) and asynchronous activities. Synchronous activities are outlined in the course schedule. Please make it a habit to visit the course home page periodically throughout the week to check for announcements. If applicable, timely entry into online meeting spaces will be expected during those scheduled times.

Participate

Students are expected to participate in all activities as listed on the course calendar. Failure to participate in lecture and laboratory activities often results in students earning poor grades in the course.

Code of Conduct

As a member of a community dedicated to learning, inquiry, and creation, the students, faculty, and administration of our university live by principles that require all members to be conscientious, respectful, and honest. Students should also understand that honest conduct reaches far beyond just academic honesty.

Completing Assignments

Assignments must be submitted by the given deadline or special permission must be requested in advanced from the instructor ***before the due date***. **NO LATE WORK IS ACCEPTED!**

Understand When You May Drop This Course

It is the student's responsibility to understand when he/she may need to consider unrolling from a course. Refer to the SHSU Course Schedule for dates and deadlines concerning registration.

Classroom Electronics Policy

Each student is expected to display professional behavior in the classroom and laboratory in terms of using electronic devices, i.e. cell phones, PDA, computers, iPad, tablets, etc. This means only using electronic devices in class or laboratory when needed to enhance educational purposes, i.e. no texting, using social media websites, etc. If you need to text or make a phone call, please step out of class to avoid disrupting your classmates. Violation of this policy could result in your expulsion from class/ laboratory if your activity interferes with learning.

Required Personal Protection Equipment (PPE) and Supplies

Students are required to have the following PPE and materials for the laboratory:

- OSHA Z87.1 Approved Safety Glasses
- Closed toe, leather shoes or boots (No sandals, no flip flops, etc.)
- 100% cotton shirt, long sleeve
- 100% cotton pants or jeans
- Leather, gauntlet style welding gloves
- Architect's Ruler ***** An Engineer's Ruler will NOT Work!*****
- T Square for Drafting (24 inches)
- # 2 Pencil with eraser
- Circle guide
- 1 roll of ¼" or ½" masking tape or drafting dots
- 1" x 6" x 10" # 2 or # 3 board (species of wood is up to the student) ***** If needed, you can cut this board in a 6 ft. piece and a 4 ft. piece for easy transportation.***** ***(subject to group project)***
- 1 pound box of 1 ¼" drywall screws ***(subject to group project)***
- 5' of ½" PVC pipe (not tubing)
- (2) 90 degree, ½" PVC, slip joint style
- (2) Tee, ½" PVC, slip joint style
- (2) Caps, ½" PVC, slip joint style

Recommended Personal Protection Equipment (PPE)

- Auto darkening Welding Hood

Required Policies at SHSU

The following are mandatory policies and procedures practiced by Sam Houston State University and can also be found at http://www.shsu.edu/syllabus/.

Academic Dishonesty

The University expects students to engage in all academic pursuits in a manner that is above reproach. Students are expected to maintain complete honesty and integrity in the academic experience both in and out of the classroom. Accusations of academic dishonesty, proceedings, and subsequent disciplinary actions are addressed in The Texas State University System, Board of Regents policy on Academic Honesty, Chapter VI, Subsection 5.3, "Academic Honesty" and in the University's Academic Policy Statement 810213.

Student Absences on Religious Holy Days Policy

Section 51.911(b) of the Texas Education Code requires that an institution of higher education excuse a student from attending classes or other required activities, including examination, for the observance of a religious holy day, including travel for the purpose. Section 51.911(a)(2) defines a religious holy day as: "a holy day observed by a religion whose places of worship are exempt from property taxation under Section 11.20…" A student whose absence is excused under this subsection may not be penalized for that absence and shall be allowed to take an examination or complete an assignment from which the student is excused within a reasonable time after the absence.

University Policy 861001 provide the procedures to be followed by the student and instructor. A student desiring to absent himself/herself from a scheduled class in order to observe a religious holy day shall present to each instructor involved a written statement concerning the religious holy day. The instructor will complete a form notifying the student of a reasonable timeframe in which the missed assignments and/or examinations are to be completed. This policy is fully addressed in Academic Policy Statement 861001.

Students with Disabilities Policy

It is the policy of Sam Houston State University that individuals otherwise qualified shall not be excluded, solely by reason of their disability, from participation in any academic program of the university. Further, they shall not be denied the benefits of these programs nor shall they be subjected to discrimination. Students with disabilities that might affect their academic performance are expected to visit with the Services for Students with Disabilities office located in the Lee Drain North Annex and can be contacted by phone at 936-294-3412 (Voice), 936-294-3786 (TDD), or via email at disability@shsu.edu. They should then make arrangements with their individual instructors so that appropriate strategies can be considered and helpful procedures can be developed to ensure that participation and achievement opportunities are not impaired.

SHSU adheres to all applicable federal, state, and local laws, regulations, and guidelines with respect to providing reasonable accommodations for students with disabilities. If you have a disability that may affect adversely your work in this class, then I encourage you to register with the SHSU Counseling Center and to talk with me about how I can best help you. All disclosures of disabilities will be kept strictly confidential. NOTE: No accommodation can be made until you register with the Counseling Center. This policy is fully addressed in Academic Policy Statement 811006.

Visitors in the Classroom

Only registered students may attend class. Exceptions can be made on a case-by-case basis by the professor. In all cases, visitors must not present a disruption to the class by their attendance. Students wishing to audit a class must apply to do so through the Registrar Office.