



**Integrated Science 351.02W, 80135**  
**COURSE SYLLABUS: Fall 2020**

**Instructor:** Steven Allemang

**Office Location:** N/A

**Office Hours:** N/A

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**University Email Address:** Steven.Allemang@tamuc.edu

**Class Hours:** [Online Class](#)

### **COURSE INFORMATION**

#### **Required Materials: Textbooks, Readings, Supplementary Readings**

- **IS 351B (SKU: 978-1-61740-948-6)** course manual, available digitally through the campus bookstore (be aware there are multiple options this semester-please verify that you are getting the correct manual **IS 351B (SKU: 978-1-61740-948-6)** at the time of purchase. This book will be used for class, and is required. The hard copy version of this book is not available, so you must purchase the digital version. I have included a link for easier access to purchase the manual: <https://store2.van-griner.com/product/redemption-code-for-advanced-integrated-science-i-351b-ebook/>

A calculator is recommended for each student; a simple inexpensive 5-function calculator will work. In addition to the class packet and texts, students will need something to take and keep notes, and a computer (see below for requirements) with printer access.

#### **Course Description**

Science is an interesting and diverse topic; learning and teaching can be enjoyable as well as educational. Science is what allows mankind to function in a productive manner. We will explore the question, "What is Science?" and help each individual grasp an understanding of his/her own philosophy of teaching.

Students will participate through hands-on experiments, a cooperative learning environment, and Online lecture. Pedagogy, methods and techniques, critical thinking, data analysis, proper handling of equipment, and content will be explored in this course.

#### **Topics covered:**

##### **Interactions and Energy**

This unit deals with energy in the context of different types of interactions, kinetic and potential energy, conservation of energy, and fields. Students will explore energy concepts in various interactions, including contact interactions (pushes, pulls, and friction), heat interactions, and electric circuits. Giver/Receiver Energy diagrams are used to describe the transfer or transformation of energy. Conservation of energy is introduced early in the case of two objects interacting, and then expanded to account for more complex chains of interactions between multiple objects (including the surroundings).

The potential energy in the context of elastic objects builds to introduce potential energy associated with non-contact forces: magnetism, static electricity, electromagnetism, and gravity. The concept of fields is used as a model for action at a distance and the associated potential energies.

### **Interactions and Forces**

This unit section treats interactions, force, and motion for single forces; and combinations of forces. Students will begin by the introduction of forces and their relationship with interactions and energy. The connection between force and motion is explored for short-duration forces, continuous forces, and backward forces; later the effects of mass and force strength are included. These are synthesized into Newton's second law. The unit ends with a treatment of the vertical motion of falling objects (ignoring air resistance).

Students examine force combinations, including balanced and unbalanced forces, exploring the net force concept. This includes a treatment of the horizontal motion of objects experiencing frictional forces, and the vertical motion of falling objects with air resistance; culminating with Newton's third law.

### **Astronomy**

The astronomy unit will cover the planets and characteristics of those planets in our solar system. The material will originate from content delivered in class, as well as the textbook, and will not require additional printed text or material.

### **Student Learning Outcomes**

1. Students will gain a better pedagogical understanding.
  - Students will identify and practice different teaching methods.
  - Students will identify different learning styles.
  - Students will be able to determine how teaching and learning styles compliment or support material in various situations.
  - Students will better understand the NGSS/TEKS alignment and how that process applies to content delivery.
2. Students will be better prepared to achieve success completing the TExES exam.
  - Students will understand the basic methodology of science through experimentation.
  - Students will prove content mastery by taking and passing 3 exams.
  - Students will understand the meaning, application, and concepts of force and motion: types of forces, Newton's laws of motion, conservation of energy, and historical contributors such as Aristotle, Galileo, and Newton.
3. Students will assist the instructor through cooperative learning to provide interesting and practical science knowledge and skills for taking instruction into the classroom and everyday life.
  - Students will learn and practice student centered instruction.
  - Students will develop a plan for laboratory safety and classroom management.

## COURSE REQUIREMENTS

### Instructional / Methods / Activities Assessments

The instructional methods for this course will vary with the topic being explored. Students will be required to access course lectures, online labs, and tutorial videos through internet access. Stable internet access will be a must for successful completion of this course.

Students will be working at home to complete labs throughout the semester. Regular online attendance is necessary to ensure understanding of the material. Online labs are a critical part of this course, and cannot be made up if missed or not turned in by posted due dates. For clarification purposes, there are NO make-up labs. This includes any lab section of a test.

Each week your discussion posts will be graded using the following rubric. Note: One post counts as 100 words or more on topic. Posts with less words or posts not addressing the week's class topic will not be considered for grading. Of course, the discussion should be allowed to flow naturally, and shorter posts will naturally occur, including one word posts of the type "I agree!" and "Yes!" or "No!". This is fine, and indeed necessary – it is just that the grading will be based upon posts of 100 words or more.

A reminder that netiquette should be observed at all times: please make sure you visit and understand the following resources:

<http://www.albion.com/netiquette/>

<http://www2.nau.edu/d-elearn/support/tutorials/discrubrics/netiquette.php>

### Grading

The following scale will be used for determining final course grades:

Daily assignments/labs	45 %
Tests (10% each midterm, 15% final)	35 %
Discussion posts	10 %
Reading Reflections	10 %

90% < A < 100%	<b><u>Tentative Exam Dates</u></b>
80% < B < 89%	1) Week 2
70% < C < 79%	2) Week 3
60% < D < 69%	3) Week 5
F < 60%	

The syllabus and/or schedule are subject to change.

Plagiarism or cheating will not be tolerated for any reason and violation will provide the individual(s) involved with a failing grade and a referral to the dean's office for further disciplinary action.

## TECHNOLOGY REQUIREMENTS

Pre-service teachers need to incorporate technology into their learning so that they can take this knowledge and understanding into their classrooms as they facilitate learning. Throughout this course, students will be using tools and technology to complete laboratory procedures. Students will need computer and printer access to complete various assignments. All written work should be typed, including citations as needed. Emailing your assignments

instead of uploading to the class D2L Portal is not acceptable. Students should expect a large amount of printing through the duration of this course.

This course is web based and students will be participating through the MyLeo portal. Students must have access to a scanner or smart phone that takes quality images to submit homework and assignments. I like/use Genius Scan; there are many different apps that will work with various smartphones and some/many are free.

- Students should have access to Zoom to participate in office hours. It is essentially a more sophisticated version of Skype, and can support conversations between multiple people. It works through a web browser; I will email a link ahead of each office hours.
  - Students will need to use the current Flash enabled browser. For PC users, the recommended browser is Google Chrome or Mozilla Firefox, and for Mac users; the most current version of Mozilla Firefox is recommended.
  - Students will need regular access to a computer with broadband internet connection. The minimum computer requirements are:
    - 512 MB of RAM, 1 GB or more preferred
    - Broadband connection required—courses are video intensive
    - Video display capable of high-color 16-bit display (1024 x 768) or higher resolution
  - Students must have:
    - A sound card, usually integrated into your computer
    - Speakers/headphones
    - For courses utilizing video-conferencing tools, and/or online proctoring solutions, a webcam and microphone are required.
  - Students must have antivirus software installed, up to date, and enabled.
  - Both versions of JAVA (32 & 64 bit) must be installed and up to date on your computer. Java 7, update 51 is required to support the learning management system. The most current version of Java can be downloaded at: <https://www.java.com/en/download/manual.jsp>
  - Run a browser check through the Pearson LearningStudio Technical Requirements website.
    - Browser Check: [http://help.ecollege.com/LS\\_Tech\\_Req\\_WebHelp/en-us/#LS\\_Technical\\_Requirements.htm#Browset](http://help.ecollege.com/LS_Tech_Req_WebHelp/en-us/#LS_Technical_Requirements.htm#Browset)
- Running the browser check will ensure your internet browser is supported.
- Pop-ups are allowed.
  - JavaScript is enabled.
  - Cookies are enabled.
- Students will need some additional free software (plug-ins) for enhanced web browsing. Ensure that you download the free versions of the following software:
  - Adobe Reader: <https://get.adobe.com/reader/>
  - Adobe Flash Player (version 17 or later): <https://get.adobe.com/flashplayer/>
  - Adobe Shockwave Player: <https://get.adobe.com/shockwave/>
  - Apple Quick Time: <http://www.apple.com/quicktime/download/>
- At a minimum, you must have Microsoft Office 2013, 2010, 2007 or Open Office. Microsoft Office is the standard office productivity software utilized by faculty, students, and staff. Microsoft Word is the standard word processing software, Microsoft Excel is the standard spreadsheet software, and Microsoft PowerPoint is the standard presentation software.
  - Copying and pasting, along with attaching/uploading documents for assignment submission, will also be required.

- If you do not have Microsoft Office, you can check with the bookstore to see if they have any student copies.
- For additional information about system requirements, please see: System Requirements for LearningStudio: <https://secure.ecollege.com/tamuc/index.learn?action=technical>

## ACCESS AND NAVIGATION

All coursework and assignments will be uploaded to the class D2L course shell. The electronic gradebook on D2L will be used in this course.

You will need your campus-wide ID (CWID) and password to log into the course. If you do not know your CWID or have forgotten your password, contact the Center for IT Excellence (CITE) at 903.468.6000 or [helpdesk@tamuc.edu](mailto:helpdesk@tamuc.edu).

If you are having technical difficulty with any part of Brightspace [D2L], please contact Brightspace Technical Support at 1-877-325-7778 or click on the **Live Chat** or click on the words “click here” to submit an issue via email.

## COMMUNICATION AND SUPPORT

### Interaction with Instructor

Interaction with Instructor Statement: You may contact me about class-related matters at the e-mail address listed on Page 1. Because we are not meeting in a regular classroom, you may also contact me by phone/text message at 903-348-2491 on weekdays between 5:00 p.m. and 7:00 p.m (class-related matters only). No weekends.

All written communication should be through email at this address: [Steven.Allemang@tamuc.edu](mailto:Steven.Allemang@tamuc.edu)

Students will be expected to regularly check their email provided by the University through D2L Brightspace, as this address is provided to the instructor. In **ALL email**, students are required to include the following information in the subject line: **the course name, last then first name, and a (very) brief statement/inquiry.**

e.g. Subject: IS 351, Allemang, Steven, lesson #3 question

This will allow all inquiries to be answered as soon as possible. If a response is not received within 2-weekdays then assume there was a problem with the email and please follow-up through other contact options.

### Brightspace Support

Need Help?

Student Support

If you have any questions or are having difficulties with the course material, please contact your Instructor.

### Technical Support

If you are having technical difficulty with any part of Brightspace, please contact Brightspace Technical Support at 1-877-325-7778 or click on the Live Chat or click on the words “click here” to submit an issue via email.

### System Maintenance

D2L runs monthly updates during the last week of the month, usually on Wednesday. The system should remain up during this time unless otherwise specified in an announcement. You may experience minimal impacts to performance and/or look and feel of the environment.

## COURSE AND UNIVERSITY PROCEDURES/POLICIES

### Course Specific Policies

Violation of any class policies will be reflected on the student's final grade for the course.

1. **Be professional.** You are completing your degree and preparing for the classroom as the facilitator of instruction. Your attitude should reflect your professionalism which should include the remaining class policies.
2. **Be here (virtually).** Although this is a web-based class, regular login will be required to keep up with the daily assignments.

As a teacher, you will be expected to turn in grades on time as well as meeting other deadlines; again be professional. Technology issues are not considered a “good reason” for turning in late assignments. All due dates are given in advance; take them seriously as **LATE WORK IS NOT ACCEPTED.**

4. **Be courteous.** Remember to always use proper netiquette in all communications. I will give you my undivided attention and be professional and courteous, and I expect the same of each student.

### Course Specific Procedures

1. **Students are required to take all exams and must prove mastery of the material by completing at least two tests with a grade of 70 or better to pass this course.** It may be possible for students to complete all coursework with a high enough average to pass the overall class without completing any of the tests with a grade above 70. If fewer than 2 exams are not completed with a score above 70, the student will receive a failing grade for the course. Combined exams total 35% of the final grade.
2. Students will be responsible for their learning and participate in all class activities with a positive attitude. Professionalism will be practiced in this course.
3. Students will have all homework completed and submitted by the assigned due date/time. **Late work is not accepted so do not be late with uploading your homework or discussion posts.**
4. Students will analyze experiments over the course of the semester which are strategically formatted to aid the student in planning lessons, locating appropriate supplementary curriculum/experiments, and becoming competent in the use and navigation of the NGSS & TEKS. Additional instructions will be provided.
5. Students will be printing a large amount of material through the semester for regular assignments. Students will need computer and printer access. Students will be responsible for their own printing needs. Emailing material for the professor (or TA) to print is not an option. **All uploaded work should be printed (not handwritten) and always include citations.** All assignments will be graded in an uploaded, online format.
6. Students will participate and contribute equally in group online discussions. Failure to comply will be reflected in the non-compliant student's grade and will not be a detriment to the remaining group members.
7. Students are welcome to participate in weekly zoom meetings or make an appointment if the posted hours do not fit the need. If you are struggling, seek assistance early. Students have the option to earn an A for this class, however extra credit is not usually offered. Students have the ability to earn an A or the right to earn an F if they

decide to not complete the work. I generally do not offer or approve drops/incompletes for poor effort and I don't drop a student for excessive absences.

## **Syllabus Change Policy**

The syllabus is a guide. Circumstances and events, such as student progress, may make it necessary for the instructor to modify the syllabus during the semester. Any changes made to the syllabus will be announced in advance.

## **University Specific Procedures**

### **Student Conduct**

All students enrolled at the University shall follow the tenets of common decency and acceptable behavior conducive to a positive learning environment. The Code of Student Conduct is described in detail in the Student Guidebook.

<http://www.tamuc.edu/Admissions/oneStopShop/undergraduateAdmissions/studentGuidebook.aspx>

Students should also consult the Rules of Netiquette for more information regarding how to interact with students in an online forum: Netiquette <http://www.albion.com/netiquette/corerules.html>

### **TAMU-C Attendance**

In an online class, attendance means active participation; students are expected to spend at least 2 hours/week on the discussion threads and at least 10 hours/week is required to complete all the assignments, including reading. At least five substantive discussion posts are required by each student in each unit to gain full points on the discussion part of the grade. If you are unable to log on for an extended period of time (greater than 2 days) then contact me in advance to discuss how to proceed. We recognize that many of you already have a busy work schedule, and that occasionally you might get behind in a unit. Spending even 15-30 minutes a day on class material and the discussion threads will help greatly, **and if you find yourself struggling at any time, please do not hesitate emailing me; I can be flexible to accommodate your busy schedule.**

For more information about the attendance policy please visit the Attendance webpage and Procedure 13.99.99.R0.01.

<http://www.tamuc.edu/admissions/registrar/generalInformation/attendance.aspx>

<http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/academic/13.99.99.R0.01.pdf>

### **Academic Integrity**

Students at Texas A&M University-Commerce are expected to maintain high standards of integrity and honesty in all of their scholastic work. For more details and the definition of academic dishonesty see the following procedures:

[Undergraduate Academic Dishonesty 13.99.99.R0.03](#)

<http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/undergraduates/13.99.99.R0.03UndergraduateAcademicDishonesty.pdf>

[Graduate Student Academic Dishonesty 13.99.99.R0.10](#)

<http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/graduate/13.99.99.R0.10GraduateStudentAcademicDishonesty.pdf>

### **ADA Statement**

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you have a disability requiring an accommodation, please contact:

### **Office of Student Disability Resources and Services**

Texas A&M University-Commerce Gee Library 162

**Phone:** (903) 886-5150 or (903) 886-5835

**Fax:** (903) 468-8148    **Email:** [Rebecca.Tuerk@tamuc.edu](mailto:Rebecca.Tuerk@tamuc.edu)

[StudentDisabilityServices@tamuc.edu](mailto:StudentDisabilityServices@tamuc.edu)

Student Disability Resources & Services:

Website: [Office of Student Disability Resources and Services](#)

<http://www.tamuc.edu/campusLife/campusServices/studentDisabilityResourcesAndServices/>

### **Nondiscrimination Statement**

A&M-Commerce will comply in the classroom, and in online courses, with all federal and state laws prohibiting discrimination and related retaliation on the basis of race, color, religion, sex, national origin, disability, age, genetic information or veteran status. Further, an environment free from discrimination on the basis of sexual orientation, gender identity, or gender expression will be maintained.

### **Campus Concealed Carry**

Texas Senate Bill - 11 (Government Code 411.2031, et al.) authorizes the carrying of a concealed handgun in Texas A&M University-Commerce buildings only by persons who have been issued and are in possession of a Texas License to Carry a Handgun. Qualified law enforcement officers or those who are otherwise authorized to carry a concealed handgun in the State of Texas are also permitted to do so. Pursuant to Penal Code (PC) 46.035 and A&M-Commerce Rule 34.06.02.R1, license holders may not carry a concealed handgun in restricted locations.

For a list of locations, please refer to the [Carrying Concealed Handguns On Campus](#) document and/or consult your event organizer.

Web url:

<http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/34SafetyOfEmployeesAndStudents/34.06.02.R1.pdf>

Pursuant to PC 46.035, the open carrying of handguns is prohibited on all A&M-Commerce campuses. Report violations to the University Police Department at 903-886-5868 or 9-1-1.



## COURSE OUTLINE

The syllabus and/or schedule are subject to change.

### Domain IV-Science

<b>Competency 24</b>	safe and proper laboratory processes
<b>Competency 25</b>	scientific inquiry
<b>Competency 27</b>	unifying concepts and processes in science
<b>Competency 28</b>	theory and practice of science teaching
<b>Competency 29</b>	assessments in science learning
<b>Competency 30-34</b>	physical science
<b>Competency 35-37</b>	life science
<b>Competency 38-41</b>	Earth and space science

Weekly outline:

In science, many of the concepts work in conjunction with others.

<b>Week</b>	<b>Topic</b>	
<b>1</b>	Course introduction and expectations Unit 1: Understanding Science Unit 2: The Metric System	
2-5	Energy, types of interactions Unit 3: Pendulums Unit 4: Energy	Test 1
6-10	Forces Unit 5: Inertia and Newton's Laws of Motion Unit 6: Work, Simple Machines, and Conservation of Energy	Test 2
11-13	Electricity Unit 7: Electricity	
14-16	Solar system Unit 8: Astronomy	Final (non-cumulative)