



IS-351-01W, Science Inquiry I
COURSE SYLLABUS: Summer II, 2022

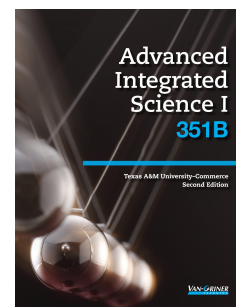
INSTRUCTOR INFORMATION

Instructor: Hilary Kakanis
Office Location: *Online*
Office Hours: Tuesdays, 7 - 7:30 PM or by appointment
University Email Address: **Hilary.Kakanis@tamuc.edu**
Preferred Form of Communication: **Email through D2L**
Communication Response Time: 24-48 hours, weekdays

COURSE INFORMATION

Materials – Textbooks, Readings, Supplementary Readings

- **Textbook(s) Required** Course-specific lab packet **IS 351B** available only from the campus bookstore.
- Software Required: none
- Other Materials:
 - simple calculator
 - notebook
 - note taking materials



The required lab book is specific for this course and is available only at the campus bookstore, please verify that you are getting the one designated **IS 351B** (with picture matching above) at the time of your purchase. A calculator is recommended for each student; a simple inexpensive 5-function calculator will work. In addition to the text & class packet, students will need something for note-taking, and computer/printer access or willingness to work with digital note taking tools like pdf editors (check out dochub) (use your google drive!). Make printing arrangements before you need them.

Course Description

Science topics and themes are chosen to emphasize broad concepts highlighted in the Texas- and National Science Standards. Topics include fundamental physical and chemical processes such as the chemistry of the environment, macromolecules of life, systems in nature, and the nature of scientific inquiry. The course will be taught using an inquiry-based method, modeling instructional techniques proven effective by current educational research. This course is designed for interdisciplinary education majors.

Science spans a broad range of topics, from biology to geology to astronomy. More than just a collection of facts, science provides a way of learning about and understanding the world. Scientific study leads to many technological advances. Science can be both fun and interesting to learn. In this course, the nature of science and the scientific method are introduced. Critical thinking is emphasized. Primarily physics related topics are covered. These topics include Newton's Laws, energy, circuits, and waves. This course models inquiry based teaching methods.

Topics Covered

Interactions and Energy

This unit deals with energy in the context of different types of interactions, kinetic and potential energy, and conservation of energy. Throughout the course, 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.

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.

Electricity and Simple Circuitry

This unit section focuses on the concept of charge and the effect of static charges on the world around them, as well as the movement of charge. Through simple circuit diagrams, students investigate Ohm's Law and the differences between series and parallel circuits.

The syllabus/schedule are subject to change.

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 and will not require additional printed text or material.

Student Learning Outcomes

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

COURSE REQUIREMENTS

Minimal Technical Skills Needed

D2L will be used for grades and as a venue/repository of review material and PowerPoints. All work to be graded will be turned in digitally through D2L. The following formats are approved for turning in assignments: .pdf, .doc, .docx, and .odt. If using google suite, please convert the document to one of those formats through their "file > download" menu. The following formats are not to be used and, if submitted, will not be graded: .pages, .jpb, and .png. Students should have a basic understanding and ability to manage fundamental computer skills such as MS Word, Excel, & PowerPoint (or similar)

Instructional Methods

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 the successful completion of this course.

Labs/Activities

Students will be working at home to complete (online) labs and activities 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 assignments.

Quizzes

As students complete labs and assignments over topic material, they will submit those assignments for participation points; upon submission to the assignment folder, the assignment Key will open for students to grade their own work, providing timely feedback on their efforts. As this happens, a Quiz over the material will also open, ready to be completed within a week of becoming available. The quizzes are open notes, open assignments, and reflect vocabulary and skills used to complete the assignments for that week. They are a reflection of what can be expected over the Module's Exam.

Discussion Posts

Each week you will be required to participate in discussions with your classmates. At a minimum, there will be 2 original posts in two separate topics, and 3 responses to other classmates' posts in any topic.

Note: One post counts as 100 words or more on topic. Posts with fewer words or posts not addressing the week's class topics 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 "Yes!" and "I agree!" or "No!". This is fine, and indeed necessary - it is just that the grading will be based upon posts of 100 words or more.

Reading Reflections

Reading reflections are also part of this course. Each week, you will be given experiments to analyze where you will identify the variables of the experiment, the goal of the experiment, and align it to the Science TEKS for a specific grade level. These reading reflections are an essay format and should consist of 150 words or more, explaining the required objectives for each assignment.

Netiquette reminder

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>

COURSE OUTLINE / CALENDAR

The syllabus and/or schedule are subject to change.

DOMAIN IV – SCIENCE

Competency 024	Safe and Proper Laboratory Processes
Competency 025	Scientific Inquiry
Competency 027	Unifying concepts and processes in science
Competency 028	Theory and Practice of Science Teaching
Competency 029	Assessments in Science Learning
Competency 030-34	Physical Science
Competency 038-41	Earth and Space science

The syllabus/schedule are subject to change.

In science, many of the concepts work in conjunction with others, the weekly outline is general and not specific. The outline is approximated for a summer semester.

Module, Days	Topic	
0, 1-3	Syllabus, experiments, pedagogy, & expectations, introductions	
1, 1-8	Energy	Test 1
2, 9-16	Forces	Test 2
3, 17-24	Electricity	Test 3
4, 25-32	Solar System	Final (non-cumulative)

Dates are approximate and may change according to the progression of course content.

GRADING

The following scale will be used for determining final course grades:	Grade Scale	Tentative Exam Dates
	100% > A > 90%	1) Day 08
	89% > B > 80%	2) Day 16
Daily assignments/labs/quizzes 45 %	79% > C > 70%	3) Day 24
Tests (10% each midterm, 15% final) 35 %	69% > D > 60%	4) Day 32
Discussion Posts 10 %	60% > F	
Reading Reflections 10 %		

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

Assessments

Labs-There will be no make-up labs. If you fail to turn in a lab assignment, you will receive a grade of zero; there is no way to make up for missed work. Failing to submit a lab on time will make that subtopic's quiz forever inaccessible. Make sure you submit all assignments on time.

Assignments- There will be a few video lectures and tutorial videos with assignments designed to test understanding and further learning. If you fail to turn in an assignment, you will receive a grade of zero; there is no way to make up for missed work. Failing to submit an assignment on time will make that subtopic's quiz forever inaccessible. Make sure you submit all assignments on time.

Quizzes- There will be a quiz over the topic for each subtopic with questions pulled from the assignments or labs and the lecture notes. The quizzes will only open when the other assignments for the subtopic have been submitted. The quiz is worth 10x the points for assignments and labs; be sure to submit those assignments on time and attempt the quiz before it is due.

Exams- Exams are administered through D2L. For each module, the exam will be posted automatically, but will only open for students upon completing the module's quizzes. Students will have a 4-day window to complete the exam. Exams have a 90-minute time limit, and once a student begins an exam, it must be completed in one sitting, so ensure that you have enough time to complete the exam prior to beginning

The syllabus/schedule are subject to change.

Student Responsibilities or Tips for Success in the Course

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 or a pdf editor (check out dochub) to complete various assignments. All written work should be typed, including citations as needed. Emailing your assignments instead of uploading them to the class D2L Portal is not acceptable. Students may expect a large amount of printing through the duration of this course if uncomfortable with working through pdf editors.

This course is web-based and students will be participating through the MyLeo portal. Students must have access to a scanner or smartphone that takes quality images (.pdf only - no .jpg or .png or etc) to submit homework and assignments. I like/use CamScanner and 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 hour.
- 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.
 - For office hours, you may make use of the type-chat function if you do not have a webcam or microphone; I will be watching the chat.
- 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:**
https://help.blackboard.com/Learn/Student/Ultra/Getting_Started/Browser_Support/Browser_Checker
Running the browser check will ensure your internet browser is supported.
 - Popups are allowed.
 - JavaScript is enabled.
 - Cookies are enabled.
- For additional information about system requirements, please see: System Requirements for Brightspace D2L: <https://secure.ecollege.com/tamuc/index.learn?action=technical>
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- 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/>

The syllabus/schedule are subject to change.

- Adobe Flash Player (version 17 or later): <https://get.adobe.com/flashplayer/>
- Adobe Shockwave Player: <https://get.adobe.com/shockwave/>
- Apple Quicktime: <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.
 - Please note: Open Office is free.
 - Please additionally note: Using google suite software and downloading as an office product to upload as an office product works just fine if you are more comfortable in the Google suite.
 - If you do not have Microsoft Office, you can check with the bookstore to see if they have any student copies.
- Copying and pasting, along with attaching/uploading documents for assignment submission, will also be required. Copying and pasting answers straight from the internet to complete assignments is not acceptable, however.

TECHNOLOGY REQUIREMENTS

LMS

All course sections offered by Texas A&M University-Commerce have a corresponding course shell in the myLeo Online Learning Management System (LMS). Below are technical requirements

LMS Requirements:

<https://community.brightspace.com/s/article/Brightspace-Platform-Requirements>

LMS Browser Support:

https://documentation.brightspace.com/EN/brightspace/requirements/all/browser_support.htm

YouSeeU Virtual Classroom Requirements:

<https://support.youseeu.com/hc/en-us/articles/115007031107-Basic-System-Requirements>

ACCESS AND NAVIGATION

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.

Note: Personal computer and internet connection problems do not excuse the requirement to complete all coursework in a timely and satisfactory manner. Each student needs to have a backup method to deal with these inevitable problems. These methods might include the availability of a backup PC at home or work, the temporary use of a computer at a friend's home, the local library, office service companies, Starbucks, a TAMUC campus open computer lab, etc.

COMMUNICATION AND 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. Other support options can be found here:

<https://community.brightspace.com/support/s/contactsupport>

Interaction with Instructor Statement

Students are welcome to come to virtual office hours. For a specific time outside of the scheduled office hours please feel welcome to send an email to schedule an appointment.

All written communication needs to be through email at this address: Hilary.Kakanis@tamuc.edu

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

e.g. Subject: IS 352, Your Name, 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.

COURSE AND UNIVERSITY PROCEDURES/POLICIES

Course Specific 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. The syllabus/schedule is subject to change.
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 meet 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.
3. **Students will have all homework completed no later than the assigned due date/time.** Late work is not accepted so do not be late with uploading your homework or discussion posts. As a teacher, you will be expected to turn in grades on time as well as meet other deadlines; again be professional. Absences 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.** Follow proper netiquette when interacting with the instructor and classmates in discussion boards.

Course Specific Procedures

1. **Students will be required to take all exams and must prove content mastery 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.** As teachers, our students are expected to complete exams to advance, and we must be prepared to do the same. Combined exams total 35% of the final grade. Exams will be open and accessible for at least 4 days each, to allow for scheduling conflicts associated with an online class.
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 when due. Late work is not accepted so do not wait until the last minute to complete/upload assignments.
4. Students could be printing a large amount of material through the semester for regular assignments/homework. Students will need computer and printer access. Students will be responsible for their own printing needs. Emailing material to the professor (or TA) to turn in assignments is not an option.

The syllabus/schedule are subject to change.

5. Students are responsible for ensuring all work is submitted in an approved format. The following formats are approved for turning in assignments: **.pdf**, .doc, .docx, and .odt. The following formats are **not** to be used, and **if submitted, will not be graded**: .pages, .jpg, and .png. Links to a document on Google Pages are also not accepted. Please take the requirements for assignment submission seriously, as there are no exceptions to this policy. D2L does not support some of these formats and will not open them for grading, and others are resource-intensive if they must be printed out for any reason.
6. Students are welcome to contact me via email or make an appointment for a Zoom meeting if email cannot fit the need for assistance. 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: <https://www.britannica.com/topic/netiquette>

TAMUC Attendance

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>

Students with Disabilities-- 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- Room 162

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

Fax (903) 468-8148

Email: studentdisabilityservices@tamuc.edu

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

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

Nondiscrimination Notice

Texas A&M University-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 Statement

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.

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