

Abilene Approval Chart for Curriculum Changes

A = Approve I = Information Item R = Respond In Writing

Course Number: NSE 699 Graduate Project or Research Hours

or Degree Plan(s):

NSE 699 (Graduate Project or Research Hours) provides students with supervised opportunities to conduct original inquiry in nuclear science and engineering.

		Dept./School	College	Dean	TEC	AUAC/Grad	Provost
	Campus-Level Academic Review¹						
	Change to a Course Include signatures from all chairs/program directors for cross-listed courses. ¹						
1.	Title (description unchanged)	A	A	A	I	I	I
2.	Description (not affecting content)	A	A	A	I	I	I
3.	Course term(s)	A	I	A	I	I	I
4.	Content (change of course outcomes)	A	A	A	I	I	A
5.	Number of credit hours	A	A	A	A	A	A
6.	Course number within the hundred	A	A	I	I	I	I
7.	Course number beyond the hundred	A	A	A	A	A	A
8.	Prerequisites	A	A	A	I	I	I
9.	Course restriction (e.g., majors only, junior standing)	A	A	A	A	A	A
10.	Level change (U to G or G to U)	A	A	A	A	A	A
11.	Cross list course	A	A	A	A	A	A
12.	Department of record	A	A	A	A	A	A
13.	Open or close a course	A	A	A	A	A	A
	Change to a Degree Plan						
14.	Educational Program — Revise	A	A	A	A	A	A
15.	Educational Program — Adopt/revise admission requirements	A	A	A	A	A	A
16.	GPA — Revise program-required GPA	A	A	A	A	A	A
17.	Minor — Revise	A	A	A	A	A	A

		Dept./School	College	Dean	TEC	AUAC/Grad	Provost	Campus Faculty	Senior VPAA	President
	Full Review									
	Change to Catalog Information (for Campus)									
18.	General requirements for Bachelor's and Associate Degrees	-	-	-	-	A	A	A	A	I
19.	Policies governing academic probation and suspension	-	-	-	-	A	A	A	A	I
20.	Requirements for graduating with honors	-	-	-	-	A	A	A	A	I
	Change to a Degree Plan									
21.	Educational Program — Add or Discontinue ^{2 3}	A	A	A	A	A	A	A	A	I
22.	Educational Program — Discontinue (Provost-proposed)	R	-	R	A	A	A	A	A	I
23.	Minor — Add or Discontinue	A	A	A	A	A	A	-	A	I
24.	Minor — Discontinue (Provost-proposed)	R	-	R	A	A	A	-	A	I
25.	Degree — Add or Discontinue	A	A	A	A	A	A	A	A	I
26.	Degree — Discontinue (Provost-proposed)	R	-	R	A	A	A	A	A	I

		Dept./School	College	Dean	AUAC	Provost	UGEC	University Faculty	Senior VPAA	President
	Change to General Education Requirements for Undergraduates (System)									
27.	Change course outcomes of an included course	A	A	A	A	A	A	-	A	I
28.	Add or drop a required course from the General Education Requirements	A	-	A	-	A	A	A	A	I
29.	Add or drop a course from a menu within the General Education Requirements	A	-	A	-	A	A	-	A	I
30.	Comprehensive revision of General Education Requirements	-	-	-	-	A	A	A	A	I

Notes

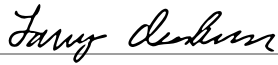
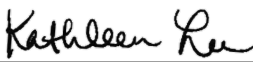
² Any change to a cross-listed course requires the signature of both department chairs or program directors overseeing the course to ensure that the courses stay in sync. This includes courses taught at other campuses (e.g. BIBL 101 and BIBO 101).

³ For undergraduate majors, a minimum of 30 hours is required. These programs must have a minimum of 6 elective hours, unless the requirements of external accrediting bodies make it impossible. Master's programs

must include a minimum of 30 hours, and doctoral programs must include a minimum of 30 hours beyond the master's.

⁴ When a department/school or dean proposes closing a program, approval routing follows the typical process beginning with the department/school. An administrative proposal by the provost or senior vice president for academic affairs would follow the "provost-proposed" routing on the chart.

Updated 8/1/2023

Department/School(s)	
	3/18/2026
Engineering Co-Chair Signature	Date
	March 18, 2026
Physics Co-Chair Signature	Date
	March 18, 2026
Chair/Program Director Signature	Date
College Academic Council(s)	
	March 18, 2026
Chair Signature	Date
Chair Signature	Date
Dean(s)	
	3/19/2026
Signature	Date
Signature	Date
Teacher Education Council	
Signature	Date
Campus Academic Council: Abilene Undergraduate or Abilene Graduate	
Signature	Date

Provost

Signature

Date

University General Education Council

Signature

Date

University Faculty

Abilene Faculty Senate Chair signature

Date

Dallas Faculty Council Chair signature

Date

Senior Vice President for Academic Affairs

Signature

Date

President

Signature

Date

Abilene New Course Application

You may delete the preceding instructional pages before submitting application.

Course ID (<i>Subject Code and Number</i>)	NSE 699
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1. Systems and Catalog Information Complete each item.

A	Course Developer	Jim Drachenberg
B	Course Instructor	Jim Drachenberg
C	Course Title	Graduate Project or Research Hours
D	Course Abbreviation for Banner if title is more than 30 characters	Grad Proj or Research
E	College	OSE - Onstead Science and Engineering
F	Department or School	PHYS - Engineering & Physics
G	Number of Credit Hours	1 - 6
G1	Number of Lecture Contact Hours	0
G2	Number of Lab Contact Hours	0
H	Is the course for a fixed or variable number of credit hours?	Variable from 1 to 6 hours per semester. The number of hours will be indicative of the number of hours that the student is engaged in research and interacting with their advisor. Hence the faculty workload hours will vary by student and by semester.
I	Is the course repeatable for additional credit?	Yes
J	Maximum total number of credit hours a student can earn for this course	6/semester, Unlimited for degree plan.

K	Course Schedule Type	Experiential Learning (EL) See Schedule Type definitions in the Reference section.
L	Number of Faculty Workload Hours	Variable, from 1 - 6
M	Grading Mode	Credit/No Credit
N	Maximum Enrollment	6 per section. A section is defined as all the students taking research hours with a given advisor.
O	Catalog Description (50 words or less)	Supervised original inquiry in nuclear science and engineering. Supports the development of a research topic or engineering project that demonstrates mastery of advanced concepts, methodology, and scholarly communication. Formulate research/project topic, perform work, analyze data, and present findings in written and oral formats. May be repeated for credit.
P	List any prerequisites (course/s, test scores, class standing, major, etc.)	Approval of instructor
Q	List any corequisites (these <i>must</i> be taken at the same time; note that a single requirement cannot be both a prerequisite <i>and</i> a corequisite)	
R	If the course is cross-listed, specify the subject code and course number of the other course	
S	Does this course require any additional student course fees?	No If yes, attach a completed course fee form (see form "Request to Add or Change Course Fees").
T1	Will the course be offered in fall terms?	Yes, every year
T2	Will the course be offered in spring terms?	Yes, every year

T3	Will the course be offered in summer terms?	Yes, every year
U	First semester this course will be offered under new Course ID. <i>May not be earlier than the coming fall semester.</i>	Fall 2026
V	Is this course required for a program(s)?	Yes If yes, submit a separate completed curriculum proposal to change the program(s).
W	Should the addition of this course be retroactively applied to the degree plan it supports? <i>This is rare, and rationale should explain compelling extenuating circumstances.</i>	No If yes, provide rationale:
X	Has this course been offered as a Special Topics course? <i>New courses are not required to be taught as Special Topics courses prior to approval.</i>	No If yes, provide course ID, term, and enrollment:
Y	List any courses in which the content overlaps the proposed course. (Course ID and Name). <i>Attach a statement from the instructor/dept chair of the existing course justifying the new offering.</i>	None.

2. Curriculum

- A. Explain any effects of this course on any degree plans. If the addition of the course alters program requirements, submit a separate [Approval Chart for Curriculum Change](#) to update the program.

Graduate Nuclear Science and Engineering

NSE 699 added as required course in the new graduate NSE curriculum

- B. Justify the addition of this course to the current curriculum, explaining the gap it meets.

This course supports work toward graduate theses, engineering projects, and dissertations. Supervised original inquiry into nuclear science and engineering is a primary goal of the graduate program, and no other existing course at ACU serves this purpose.

3. Course Design

A. Audience and Course Goal

1. Describe the intended audience, including prerequisite skills.

The intended audience is graduate students in nuclear science and engineering.

2. State the overarching course goal(s) in performance terms.

Students completing this course will develop an original research or engineering project and compose a proposal to explain and defend the merits of their project. Students will apply the principles of nuclear science and engineering to their project. Ultimately, students will demonstrate mastery of nuclear science and engineering by organizing, explaining, and defending their findings in written and oral formats.

B. Student Learning Outcomes and Measurements*

	Student Learning Outcome	Measurement
1	Students <u>develop</u> original research or engineering project -or-	Formal proposal
2	Students <u>explain</u> and <u>defend</u> the originality and merit of their chosen project -or-	Formal proposal
3	Students <u>apply</u> principles of nuclear science and engineering in original inquiry -or-	Written and oral reports
4	Students <u>explain</u> and <u>defend</u> project findings	Written and oral reports

* Outcomes vary by semester but at least one outcome must be measured each semester, and all must be completed by graduation

C. Text and Resources

Give the full publication information of the textbook/s and other required resources and outside readings. For **combined undergraduate/graduate** courses, make two lists:

- A. full publication information; label **Undergraduate**.
- B. full publication information; label **Graduate**.

No required course text; students will survey published scientific and engineering literature appropriate to their projects, e.g., through library and laboratory resources

4. Supporting Documentation

Required of all applications

1	<u>Approval Chart for Curriculum Changes</u>
2	Syllabus — Attach the syllabus for the course based upon the anticipated first-semester offering.
4	Library — Submit new course application and syllabus to the Library dean's office. Attach the Library's memo.
Attach if applicable	
5	Content Overlap — Include one document for each course you listed in Section 1Y. Attach statement from instructor/dept chair of existing course justifying the new offering.
6	Departmental Resources — List the resources that support the course and are available only through the department, if applicable. Attach the list of the holdings and the location(s).
7	Resources — List resources (other than library or departmental resources) that are needed to support this course (computers, lab equipment, other technology, etc.). Attach a complete list of all items and indicate possible sources or estimated cost of each. List the sources of any needed funds.
8	Expenses — List additional expenses needed to implement this course (full-time or part-time faculty, graduate or lab assistants, student employees, travel, special student costs, room renovation, storage facility, etc.). Attach a complete list of all items, the estimated cost of each and the source of the funds.
9	Justification — Attach any documents to which you refer in Section 2B.

Graduate Project or Research Hours

Instructor: Dr. Jim Drachenberg (jld00a@acu.edu)

About the Course

In this course, we provide opportunities for supervised original inquiry into nuclear science and engineering. Students will apply the principles of nuclear science and engineering to an engineering or research project.

Course number and title: NSE 699 – Graduate Project or Research Hours

Credit hours: 2

Semester and year: Fall 2026

Meeting time: To be determined

Meeting place: Variable (e.g., advisor's office, research area, virtual meetings)

Prerequisites/corequisites: Instructor approval

Catalog description: Supervised original inquiry in nuclear science and engineering. Supports the development of a research topic or engineering project that demonstrates mastery of advanced concepts, methodology, and scholarly communication. Formulate research/project topic, perform work, analyze data, and present findings in written and oral formats. May be repeated for credit.

Intended audience: Graduate students in nuclear science and engineering.

About the Teacher

Instructor: Dr. Jim Drachenberg, Professor of Engineering and Physics

Office location: Dillard Science and Engineering Research Center (DEC) 212

Phone number(s): (325) 674-6150

Email address: jld00a@acu.edu

Office hours/Contact expectations: By appointment or mutually agreed regular meeting schedule.

Mission Statements

ACU Mission: The mission of Abilene Christian University is to educate students for Christian service and leadership throughout the world.

College Mission: The mission of the Onstead College of Science and Engineering is to explore and understand God's creation in the natural world and apply the acquired knowledge and principles to address its issues and challenges. The college offers programs in the natural sciences, engineering, and mathematics. These programs combine the rigor of scientific and technical disciplines with the critical thinking, ethical reasoning, and spiritual perspectives that are central to a Christian liberal arts education.

Department Mission: To prepare graduate students for impactful careers in nuclear science and engineering by equipping them with deep scientific knowledge, cutting-edge research experience, and specialized technical skills. The program emphasizes integrity, leadership, and service, modeled through rigorous academic standards and Christian values, while promoting innovation, interdisciplinary collaboration, and professional excellence within the evolving field of nuclear science and engineering.

Unique Christian Perspective:

For since the creation of the world His invisible attributes, that is, His eternal power and divine nature, have been clearly perceived, being understood by what has been made, so that they are without excuse. For even though they knew God, they did not honor Him as God or give thanks, but they became futile in their reasonings, and their senseless hearts were darkened.

—Romans 1:20-21

In NSE 699, we embark on original inquiry in nuclear science and engineering. We apply the principles learned in class to the “real world” with a goal of mastery of our discipline. We quickly learn humility, as the real world is complicated and that there are few problems that can be solved in simple closed form. We also quickly learn joy! Despite its complexity, the real world is ordered; and the tools we have developed help us design experiments and solutions. Yet, we encounter temptation: We begin to feel a sense of reverence for the wonder of the created world. We begin to develop pride in our mastery of the principles of the created order. Scriptures such as Romans 1 help us maintain the proper ordering of our lives. In our original inquiry, the wonder we experience belongs not to the creation but to the Creator. The mastery we develop is not a prize we have won for ourselves but the gift of the Master Who created an ordered world that can be understood and used for His will. As we learn through original inquiry, let us be blessed by the joy of seeing nature clearly and truly, not as an object of worship, itself, but a reminder to direct our hearts to God. Let us be blessed by the joy of seeing ourselves clearly, not with foolish pride in our false self-sufficiency, but in renewed confidence in the love and power and grace of our Creator, Who reveals Himself more and more through the simple gift of each discovery.

Course Content

Outline of topics:

- Identify original research or project topic
- Preliminary background research
- Outlining scope, methodology, outcomes, and relevance
- Developing proposals and progress reports
- Developing, organizing, and defending findings in written and oral presentations

Format of Class

Format of Class: This class is designed to support supervised original inquiry. Consequently, it will not follow a traditional “class” format. You will meet with me in one-on-one settings and in collective settings with the relevant research or project groups. You will also spend significant portions of the class independently conducting research and project work, followed by reporting your findings to me and group.

On-line: There will likely be times where it is both convenient and appropriate for us to meet on-line. For these meetings, we will typically use Zoom.

Instructional Materials

Course texts:

No required course textbook. You will conduct background research using relevant texts from the scientific literature. These will be available to you through library and lab resources.

Learning Outcomes

Student Learning Outcome*	Measurement
1 Students <u>develop</u> an original research or engineering project -or-	Formal proposal
2 Students <u>explain</u> and <u>defend</u> the originality and merit of their chosen project -or-	Formal proposal
3 Students <u>apply</u> principles of nuclear science and engineering in original inquiry -or-	Written and oral reports
4 Students <u>explain</u> and <u>defend</u> project findings	Written and oral reports
* Outcomes vary by semester but at least one outcome must be measured each semester and all must be completed by graduation	

Assessment and Grading

Assessment Activities: Your S/U grade is based on the successful completion of assignments appropriate to your stage of research. In your first semester, your primary task will be to develop and submit a comprehensive research or project proposal. As you progress in your research, you will provide progress reports to both me and your research group. In the final stages, you will be expected to deliver a thorough report and defend your findings.

Criteria for Satisfactory (S) Grade: To receive a grade of Satisfactory (S), you must:

- Submit a research or project proposal that demonstrates a clear understanding of your topic and methodology.
- Provide timely progress reports that reflect significant advancement in your project.
- Complete a final report and conduct a defense that meets the academic standards of clarity, depth, and analytical rigor.

Criteria for Unsatisfactory (U) Grade: A grade of Unsatisfactory (U) will be issued if you fail to meet any of the outlined Satisfactory criteria, including but not limited to:

- Incomplete or poorly constructed proposal.
- Lack of progress in your research as reflected in subsequent reports.
- Inadequate defense of your findings.

University Resources

I care about your class experience. The university also has a number of resources in place to support the ACU community both in this class and all aspects of university life.

Reporting Violations / Concerns / Complaints

Incident reports alleging violations of Student Conduct or concerns/complaints can be submitted [here](#). Please use the form to submit information about an incident to Student Life / Office of the Dean of Students.

SOAR (Student Opportunities, Advocacy, and Resources):

SOAR partners with faculty, staff, parents and students to assist ACU students and connect them to resources available to support their path to success. For more information about SOAR or to make a SOAR recommendation, see <https://acu.edu/soar-program/>.

Mental Health Resources

As a student you may experience a range of issues that can cause barriers to learning, such as strained relationships, increased anxiety, alcohol/drug problems, feeling down, difficulty concentrating and/or lack of motivation. These mental health concerns or stressful events may lead to diminished academic performance or reduce a student's ability to participate in daily activities. Abilene Christian University is committed to supporting students addressing any of these concerns.

You can contact the [Medical and Counseling Care Center](#) at counseling@acu.edu, or by calling 325-674-2626. In addition, you can access free confidential counseling services through the Timely Care app by downloading their app on any device. In a crisis situation contact the National Suicide Prevention Hotline open 24/7 by dialing 988, or call the Police at 911.

Another wonderful resource to help you learn how to manage your stress as a student can be found in your Compass app. The Wellness Badge is designed to help you understand how to manage your stress and how to do so on our campus. Completing each of the pathways earns you a chance at incentives, and completing the entire badge will earn you 200 chapel points. You can find the badge in your Compass app.

University Policies

ADA Compliance Policy:

Abilene Christian University is dedicated to removing barriers and opening access for students with disabilities in compliance with ADA and Section 504 of the Rehabilitation Act. The ACU website provides more information at <https://acu.edu/about/uap/overview-2/about-2/>. Please contact me to discuss any approved accommodations that you require for this class.

Title IX Policy:

At ACU, we strive to comply with all applicable legal requirements prohibiting, preventing, and responding to sexual misconduct against any member of the ACU community. The full Title IX policy and process can be found at <https://acu.edu/human-resources/title-ix-and-sexual-misconduct-information/>.

Academic Integrity Policy:

Academic integrity is demonstrated by behavior that honors the learning environment, regardless of setting, context, location or modality. ACU's Academic Integrity Policy can be found at <https://acu.edu/office-of-the-provost/academic-policies/>.

Anti-Harassment Policy:

As a professor, one of my responsibilities is to help create a safe learning environment on our campus. I also have a mandatory reporting responsibility related to my role as a professor. It is my goal that you feel able to share information related to your life experiences in classroom discussions, in your written work, and in our one-on-one meetings. I will seek to keep the information you share private to the greatest extent possible. When I am not able to keep your information confidential, I will only share it with responsible administrators on campus who can provide you with services and resources. I am required to share with the Title IX Coordinator information regarding sexual misconduct or harassment, dating or domestic violence or stalking that you report to me. If you would prefer to share information in a confidential setting, I encourage you to speak with someone in the [ACU Counseling Center](#). All of your options are available for review by clicking on the link to ACU's [policy](#).

Course Policies

Meeting Participation: Regular engagement in research meetings with your advisor and research team is crucial for your success in NSE 699. Meetings may take place at various locations, including your advisor's office or designated research areas. If you are unable to attend a scheduled meeting due to illness or unexpected circumstances, please inform your advisor as soon as possible. Open communication about your situation is important for both your well-being and the continuity of your research.

Professional Conduct: It is essential to maintain a respectful and constructive atmosphere during all interactions. Professionalism in communication and behavior is always expected, whether in person or virtually. Address any concerns about meeting dynamics or interactions with your peers directly and respectfully.

Dress Code: Dress appropriately for any lab or project-related meetings, particularly if personal protective equipment (PPE) is required for safety. When representing the university, lab, or your research group during presentations or meetings with external collaborators, please ensure you dress in a professional manner.

General Policies: Adhere to all university policies and deadlines relevant to this course.

Technology use: Observe all legal, ethical, and appropriate-use regulations for all technology, e.g., do not misuse the ACU network by accessing inappropriate websites or conducting personal side-business activity.

Academic Integrity: All university policies concerning academic misconduct—especially plagiarism—apply to all research activities. Work presented as original must be original. Appropriate citations and acknowledgement of other's work must be given and reported as such. Reports submitted in your name must reflect your original work. Copying the work of *anyone*, past or present, without appropriate citation is a violation of Academic Integrity and will lead to disciplinary action including but not limited to loss of credit and automatic course failure.

AI: Machine learning and artificial intelligence are increasingly important tools that show up in ways we may not even realize. Use of trained machine-learning algorithms, e.g., neural networks, will play an important and appropriate role in analysis of laboratory data. Generative AI, e.g., Chat-GPT, has raised challenging questions related to education and ethics. Please consult me before using generative AI in your research or project work. There are likely appropriate uses, e.g., quick searches to compose analysis codes. It is also possible that portions of your research will relate to the use or development of AI tools. However, one must be aware that there are also dangers and hard restrictions, e.g., uploading data with IP protections. Following the current best practices and policies for academic journals in nuclear science and engineering, you may not use generative AI to compose proposals, progress reports, or reports on findings. This work must be original

and in your own voice. Failure to cite use of generative AI will be treated as academic dishonesty.

Data, Intellectual Property, and Confidentiality:

Respect the confidentiality and intellectual property rights related to research data, ideas, and ongoing projects. Do not share proprietary information outside the research group unless authorized and follow all data management protocols.

Calendar

Refer to Canvas Calendar for the most up-to-date information. Modules are already in place for each week's activity. Please refer to the [university academic calendar](#) for key dates relevant to our campus.

DATE	TOPICS COVERED	Assignment
Week 1	Advisor meeting with discussion of possible projects	
Week 2	"Brainstorm" research, advisor meeting to narrow topics	Progress Report
Week 3	Background research, advisor and group meeting	Progress Report
Week 4	Background research, advisor and group meeting	Progress Report
Week 5	Background research, advisor and group meeting	Proposal Abstract
Week 6	Project work, advisor and group meeting	Progress Report
Week 7	Project work, advisor and group meeting	Progress Report
Week 8	Project work, advisor and group meeting	Progress Report
Week 9	Project work, advisor and group meeting	Proposal Intro
Week 10	Project work, advisor and group meeting	Progress Report
Week 11	Project work, advisor and group meeting	Progress Report
Week 12	Project work, advisor and group meeting	Progress Report
Week 13	Project work, advisor and group meeting	Progress Report
Week 14	Project work, advisor and group meeting	Proposal Draft
Week 15	Project work, advisor and group meeting	Progress Report
Finals Week	Final Proposal Presentation	Final Proposal



January 8, 2026

Dr. Mark DeHart
Associate Professor
Director, Nuclear Science and Engineering Graduate Program
Onstead College of Science and Engineering
(325) 674-2066

Re: Review of Graduate Project or Research Hours (NSE 699)

Dear Dr. DeHart,

Thank you for submitting Graduate Project or Research Hours (NSE 699) to us for review. I have reviewed it based on the ACU Syllabus Guidelines. I found the syllabus to meet all aspects of the checklist.

Please note that this letter is intended as a reference, which will be read by the department chair and members of the council, who may also have questions or comments of their own. If you have any questions, please feel free to let me know.

Please also let me know if we can be of any help in the design and facilitation of this course.

Sincerely,

A handwritten signature in black ink that reads 'Amy Boone'.

Amy Boone M.Ed.,
Teaching and Learning Specialist, Adams Center

ABILENE CHRISTIAN UNIVERSITY

LIBRARY

M E M O R A N D U M

DATE: December 12, 2025
TO: Dr. Mark DeHart
FROM: Mark McCallon, Associate Dean for Library Services
RE: Course Application for NSE 699 - Graduate Project or Research Hours

After reviewing the course application and syllabus, the library can support the proposed course. Please contact Mark McCallon (mccallonm@acu.edu), Librarian Liaison to the Department of Engineering and Physics, if you will require additional library resources in the future to support the course. Thank you for letting us review the course application and syllabus.