Course Change Request

New Course Proposal

Date Submitted: 08/15/25 4:16 pm

Viewing: QSE 798 : Master's Research Project

Last edit: 08/25/25 12:41 pm

Changes proposed by: kgaj

In Workflow

1. **SC Curriculum Committee**
2. SC Assistant Dean
3. Assoc Provost-Graduate
4. Registrar-Courses
5. Banner

Programs referencing this course	: Quantum Science and Engineering, MS

Are you completing this form on someone else's behalf?

No

Effective Term: Spring 2026

Subject Code: QSE - Quantum Science and Engineering **Course Number:** 798

Bundled Courses:

Is this course replacing another course? No

Equivalent Courses:

Catalog Title: Master's Research Project

Banner Title: Master's Research Project

Will section titles vary by semester? No

Credits: 1-3

Schedule Type: Thesis

Hours of Other Contact Hours per week: 1-3

Repeatable: May be repeated within degree (RD) **Max Allowable Credits:** 5

Default Grade Mode: Satisfactory/No Credit

Recommended Prerequisite(s): At least 15 credits of QSE coursework, excluding foundational courses, QSE 501 and QSE 502

Recommended Corequisite(s):

Required Prerequisite(s) / Corequisite(s) (Updates only):

Registrar's Office Use Only - Required Prerequisite(s)/Corequisite(s):

And/Or	(	Course/Test Code	Min Grade/Score	Academic Level	)	Concurrency?

Registration Restrictions (Updates only):

Registrar's Office Use Only - Registration Restrictions:

Field(s) of Study:

Class(es):

Level(s):

Degree(s):

School(s):

Catalog Description:

This course is an experiential learning opportunity designed to provide students with experience in quantum science and engineering research. Directed by QSE faculty, students will engage in research through an academic, industry, or government research opportunity. Note: No more than 3 credits may be counted toward satisfying the master's degree, although students may register for up to 5 credits total until the project is completed.

Justification:

What: Create a new course.
Why: Quantum Science and Engineering requires more than just classroom knowledge. Students need to learn to work across disciplines and in various research settings, both academic and industrial.

This course will allow students to pursue a research project in collaboration with an approved industry or academic supervisor. Students will complete a QSE-related research project over the course of the semester and then communicate their work to other students and faculty. Students will learn the skills required to participate in QSE research teams in a variety of environments aligned with their individual career trajectories and goals. All students will learn necessary written and oral presentation skills, as well as the ability to "know their audience."

This course does not overlap with any current course offerings.

Does this course cover material which crosses into another department? No

Learning Outcomes:

Will this course be scheduled as a cross-level cross listed section? No

Attach Syllabus QSE_798_syllabus.pdf

Additional Attachments

Have you reached out to the Libraries to determine whether there are adequate resources to support your course? If not, please email Meg Meiman, Associate University Librarian for Learning, Research, and Engagement at mmeiman2@gmu.edu.

Yes

Additional Comments: This is a core course for the new MS program in Quantum Science and Engineering.

Reviewer Comments

Key: 19081

QSE 798: Master's Research Project

Semester and Year: Every semester, including summers, after the launch of the program

Course Coordinator: Dr. Michael Jarret Baume
Department of Mathematical Sciences, College of Science
and Department of Computer Science, College of Engineering and Computing
Email: mjarretb@gmu.edu

Potential Advisors (each working individually with one or more students):

- Michael Jarret Baume - Department of Mathematical Sciences, COS, and Department of Computer Science, CEC, Email: mjarretb@gmu.edu
- Kris Gaj - Department of Electrical and Computer Engineering, CEC, Email: kgaj@gmu.edu
- Weiwen Jiang - Department of Electrical and Computer Engineering, CEC, Email: wjiang8@gmu.edu
- Fei Li - Department of Computer Science, CEC, Email: fli4@gmu.edu
- Jessica Rosenberg - Department of Physics & Astronomy, COS, Email: jrosenb4@gmu.edu
- Ming Tian - Department of Physics & Astronomy, COS, Email: mtian1@gmu.edu
- Lei Yang - Department of Information Sciences and Technology, CEC, Email: lyang29@gmu.edu

Class Meeting Day(s) and Time(s): TBA
Modality: students can meet with their instructors Face-to-Face or online
Class Location: typically, offices of the respective instructors

Office Hours: TBA
Office Hours Location: TBA

Course Description

This course is an experiential learning opportunity designed to provide students with experience in quantum science and engineering research. Directed by QSE faculty, students will engage in research through an academic, industry, or government research opportunity. Note: No more than 3 credits may be counted toward satisfying the master's degree, although students may register for up to 5 credits total until the project is completed.

Recommended Prerequisites

- At least 15 credits of QSE coursework, excluding foundational courses, QSE 501 and QSE 502

- An anticipated career trajectory, to be discussed with the QSE 798 course coordinator
- Identification of a faculty research advisor, distinct in role, if not in person, from their assigned program advisor prior to registration. If working in collaboration with an industry advisor, this will be the GMU faculty member responsible for tracking the student's progress in the industry setting.

Course Learning Outcomes

By the end of this course, students will be able to:

- explain the relevance of their research project to a variety of audiences in written and oral form,
- articulate the opportunities and limitations of the quantum technology with which they are engaged, and
- understand how research and development work is performed in their chosen setting.

Grading Policy, including Grade Weights and Grading Schema

- Students are required to
    - Submit and revise a description of research goals (one page)
    - Submit weekly or bi-weekly progress reports (format TBD by faculty advisor)
    - Submit and revise a final project report
    - Orally present their work to an audience of other QSE 798 students, faculty, and other invitees.

  At the end of the semester, each of these components will be evaluated using the following grades:

  S – Satisfactory (100% completion rate)
  IP – In Progress (at least a 50% completion rate)
  UN – Unsatisfactory (below 50% completion rate).

- Students receiving an S grade for all four course components will receive an S for the entire course. Students earning a mixture of S and IP grades will receive an IP grade for the entire course. Students earning an UN for at least one component of the course will receive an NC grade for the entire course.

Grading-related Policies

- Students must register for at least 3 credits of QSE 798 for their first project/thesis semester and will be graded according to the standards of 798. Students who decide to pursue the thesis option are encouraged to use the QSE 798 presentation as an opportunity to orally propose their thesis and have it approved.
- Following their first project/thesis semester, master's students must maintain continuous enrollment in QSE 798 or QSE 799, excluding summers, each semester until the project is complete, with the exception of terms in which a student is on a Leave of Absence. Students who are completing their project/thesis in the summer

must be registered for at least 1 credit of QSE 798/799 in the summer. If satisfactory progress is being made, students registered for QSE 798/799 are graded IP until work is complete; at that time, they are graded S/NC. If progress is unsatisfactory in a semester, a grade of NC will be assigned.

- When the project/thesis is completed, a final grade of S or NC is assigned, and the Office of the University Registrar updates previous IP grades to reflect the final S or NC grade. If the student voluntarily resigns or is terminated due to time limit, the grade of NC will be assigned. Insufficient QSE 798/799 progress in a semester may impact international student eligibility for Optional Practical Training."

Course Materials

The course materials will be determined on a case-by-case basis, with the guidance of a faculty research advisor, a potential industry advisor, and the course coordinator.

Writing Center

The staff of the George Mason University Writing Center offers resources and services (e.g., tutoring, workshops, writing guides, handbooks) to support students in their writing assignments.

Course Logistics and Schedule

The class revolves around directed reading and/or investigation, and as such is quite individualized in nature. The precise details of the material covered and the location and frequency of meeting times will be determined in an agreement between the faculty member and student. Often this agreement will include meeting once every week, but this is not the only possible arrangement. It will be expected that in preparation for meetings with faculty, the student will work on material independently, and that they will come to meetings prepared to discuss a predetermined text or list of tasks. Once the schedule and format are agreed upon, the student is expected to keep to the schedule.

AI (Artificial Intelligence) Tools Policy

The use of AI-based tools is permitted for purposes of learning, exploring ideas, and identifying credible references. Students may use such tools to clarify concepts, brainstorm topics, or locate scholarly sources. However, AI tools must not be used to generate complete solutions to assignments, assessments, or projects, nor may students present AI-generated text, code, or other output as their own original work. Copying, paraphrasing, or otherwise incorporating AI-generated materials without attribution constitutes academic dishonesty and will be treated as plagiarism under the University's Academic Standards. Students are responsible for critically evaluating and verifying any information obtained through AI tools, ensuring that their submissions reflect their own understanding, analysis, and synthesis of course material.

Common Policies Affecting All Courses at George Mason University

Common policies affecting all courses at George Mason University, including

- Academic Standards
- Accommodations for Students with Disabilities
- FERPA and Use of GMU Email Addresses for Course Communication
- Title IX Resources and Required Reporting,

are available at

https://stearnscenter.gmu.edu/home/gmu-common-course-policies

You are strongly encouraged to get familiar with this additional information.