Course Change Request

New Course Proposal

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

Viewing: **QSE 799 : Master's Thesis**

Last edit: 08/19/25 9:52 am

Changes proposed by: kgaj

Programs referencing this course	**: Quantum Science and Engineering, MS**

In Workflow

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

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

No

Effective Term: Spring 2026

Subject Code: QSE - Quantum Science and Engineering   **Course Number:** 799

Bundled Courses:

Is this course replacing another course? No

Equivalent Courses:

Catalog Title: Master's Thesis

Banner Title: Master's Thesis

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:**   99

Default Grade Mode: Satisfactory/No Credit

Recommended Prerequisite(s):   3 credits of QSE 798 with a grade of IP or S

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 course designed to afford students the opportunity to extend the depth of their knowledge of QSE research. The Master's topic will be chosen in collaboration with a committee of GMU faculty.

Justification: What: Create a new course.

Why: Due to the diverse nature of quantum science and engineering (QSE) roles, students may desire advanced study or specialization in a subfield. The thesis option is available to students who wish to pursue deeper study in a particular aspect of QSE that goes beyond the scope of standard offerings.

The thesis will be pursued in close collaboration with a faculty supervisor, who will both approve the project and ensure its successful completion. Students will develop advanced research and presentation skills. Successfully completing the thesis will position students for either more advanced roles in the quantum industry or continued study towards a PhD in a related field.

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_799_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 an advanced quantum elective course for the new MS program in Quantum Science and Engineering.

Reviewer Comments

Key: 19082

QSE 799: Master's Thesis

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

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

Course Description

This course is an experiential learning course designed to afford students the opportunity to extend the depth of their knowledge of QSE research. The Master's topic will be chosen in collaboration with a committee of GMU faculty.

Recommended Prerequisites

- 3 credits of QSE 798 with a grade of IP or S
- Pre-approval of a committee with no fewer than 3 members

Course Learning Outcomes

By the end of this course, students will engage in research that deepens their knowledge of some subfield of QSE. Faculty committees will be encouraged to steer the trajectory of the student's research towards publishable work, although students will not be required to publish in order to successfully complete the course.

Grading Policy, including Grade Weights and Grading Schema

- Students will be required to:
  - orally propose/kick-off their thesis topic and receive feedback from committee members and other faculty (unless completed in an earlier semester)
  - submit weekly or bi-weekly progress reports (format TBD by faculty advisor)

- submit a final written thesis and have it approved for defense by the committee, and
- orally defend their thesis.

- Upon completion or failure to complete all required components of the course, students will receive either a grade of S, IP, or NC. (See course policies below.) Receiving the grade S is possible only after the satisfactory completion of all tasks listed above. The grade NC is given to the students who fail to make significant progress with their tasks planned for a given semester (less than 50% of planned tasks completed). Otherwise, the students will receive the grade IP, unless they have reached the time limit for the degree, in which case, their grade will be an NC.

Course 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 in 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 and a potential industry advisor.

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.