



RICE UNIVERSITY

Master of Energy Transition and Sustainability

School of Engineering / School of Natural Sciences

Master of Energy Transition and Sustainability

**Wiess School of Natural Sciences
George R. Brown School of Engineering**

Graduate Degree Requirements and Procedures

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www.mets.rice.edu

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Consult the Rice University General Announcements on-line at
<http://ga.rice.edu/> for additional information or changes.

PROGRAM OVERVIEW

The **Master of Energy Transition and Sustainability** is co-hosted by the Wiess School of Natural Sciences and George R. Brown School of Engineering, and is administered by the Professional Science Master's Program Office in the School of Natural Sciences.

The **Master of Energy Transition and Sustainability** is an integrative professional master's program that draws upon faculty and course offerings across multiple departments within engineering and natural sciences to address future energy challenges. The consensus recognition of climate change, extreme weather events, and still-growing carbon dioxide emissions is leading to irreversible shifts in how we generate and use energy, chemicals, and materials sustainably, while managing and lowering the impact of greenhouse gases in the environment. Renewable energy sources, such as wind and solar, geothermal energy, H₂ production/storage, carbon capture and sequestration are all ways to generate global energy supply and to reduce emissions.

This program will provide the knowledge for scientists and engineers to apply their transferrable skills to the search for new energy sources, to develop new technologies to harness, store, and utilize this energy and to recover and remove the products of energy usage, and to design sustainable systems for the long term.

The curriculum for the degree consists of required science and engineering courses, a capstone course, and electives specific to the area of specialization. This combination should enable the student to develop and apply her/his scientific education to addressing global energy challenges, and to communicate this knowledge to the broader public.

GENERAL DEGREE REQUIREMENTS

Each degree consists of science core courses and elective courses.

Master's of Energy Transition and Sustainability students must take a minimum of 31 semester hours of upper-level courses (at the 500-level or higher); Students who have already taken courses substantially like any of the required courses (and have not used them for another degree) may request to transfer up to 6 credit hours from a former institution. This process requires that students submit a memo and copies of all relevant transcripts and course syllabi to the program committee. Each case must be individually approved by the program committee.

Students must maintain a B- (2.67) grade point average in courses counted toward the graduate degree. Students whose GPA falls below 2.67 are placed on probationary status. Students on probationary status will not be approved for graduation.

The general timeline for these degrees is two to three semesters of study to complete the required coursework. Full-time students may be able to finish the degree in one year, and part-time students usually finish within 2 to 3 years. The university allows a maximum of five years to complete a master's degree.

Students develop a study plan before entering the program that details the course work they are planning to pursue during their studies at Rice. The study plan is reviewed by advising faculty and adjusted over time to adapt to any changes in course offerings and career goals of students.

Professional Master's 5th Year Degree Option for Rice Undergraduates

Rice students have an option to pursue a Professional Master's degree back-to-back with the bachelor's degree by adding just one more year of graduate studies to the four undergraduate years of science studies. Advanced Rice students in good standing apply during their junior year and then start taking required core courses of the respective program during their senior year in addition to finalizing their undergraduate requirements. Note that a specific course completed can be counted toward only one degree. Once all requirements for the undergraduate degree are completed, the student will matriculate into the master's degree program. A plan of study based on their specific focus area will need to be approved by the faculty program director. Students should be aware that there could be financial aid implications if the conversion of undergraduate coursework to that of graduate-level reduces their earned undergraduate credit for any semester below that of full-time (12 hours) status.

Visit the General Announcements for more detailed information:

<https://ga.rice.edu/undergraduate-students/academic-opportunities/undergraduate-graduate-concurrent-enrollment/>

ENERGY TRANSITION AND SUSTAINABILITY

There are two focus areas in the Master's of Energy Transition and Sustainability program:
Engineering and Geosciences

Check availability on the [Registrar's Office Course Schedule site](#). Substitutions can be approved by advising faculty

Graduate students in the Masters of Energy Transition and Sustainability program will take the following courses:

Core Requirements for both Specializations (13 credit hours):

BIOS 580	Sustainable Development and Reporting
CHBE 549	Economics and Policies of the Energy Transition
CHBE 552	Transitioning to Low Carbon Energies: Engineering Fundamentals
CHBE/EEPS 680	Energy Transition Seminar
EEPS 582	Geosciences for the Energy Transition

Capstone Requirement for both Specializations (3 credit hours):

CEVE 507	Energy and the Environment
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Area of Specialization: 15-16 Credit Hours

Select 1 of the following Areas of Specialization

1. Engineering
2. Geosciences

ENGINEERING FOCUS AREA:

Electives (15 credit hours)

Students will choose 15 credit hours from the following electives:

CEVE/ENGI 505	Engineering Economics and Project Management
CEVE 543	Statistical-Physical Methods for Hydroclimate Extremes and Catastrophes
CHBE 506	Technoeconomic Analysis and Engineering Decision Tools
CHBE 510	Fundamentals and Applications in Electrochemical Energy Conversion
CHBE 515	Separation Technologies for Chemical and Biomolecular Processes
CHBE 517	Fundamentals of Materials in Energy and Sustainability
CHBE 521	Analysis of Energy Systems
CHBE 568	Industrial Chemical Processes and the Energy Transition
CHBE 614	Advanced Computational Methods for Energy
CHBE 720	Special Topics in Chemical Engineering
EEPS 585	Computational and Data Science in the Energy Industry
EEPS/CHBE 657	Carbon Capture, Utilization and Storage
MECH 565	Renewable and Advanced Energy Systems

GEOSCIENCES FOCUS AREA:

Elective Courses (15 credit hours)

Students will choose 15 credit hours from the following electives:

EEPS 501	Special Studies for Graduate Students
EEPS 579	Applied Subsurface Systems: Analytical Methods for Energy and Sustainability
EEPS 585	Computational and Data Science in the Energy Industry
EEPS 586	Introduction to Data Science and Methods
EEPS 593	Introduction to Geothermal Energy Systems
EEPS 637	Earth's Natural Resources for the Energy Transition
EEPS 638	The Science of Nature-Based Carbon Sequestration
EEPS 648	Exploration Geophysics
EEPS 657/	Carbon Capture, Utilization
CHEB 657	
EEPS 658	Environmental and Applied Rock Physics
EEPS 659	Well Logging and Petrophysics
EEPS 667	Geomechanics

NOTE: *Some listed courses may not be offered every year, and others may be offered that satisfy the requirements with pre-approval. Students should consult with their academic advisors before enrolling.*

TOTAL REQUIRED CREDIT HOURS: 31 (minimum)

Note: An individual course may not be offered every year, and some courses may have pre-requisites or require instructor permission.

Please note: The General Announcements (GA) is the official source for the Rice curriculum. If there is a discrepancy between the GA and any other websites or publications, the GA shall prevail as the authoritative source.

STUDENT ADVISING

One to two weeks prior to the first semester of study, students will submit a tentative study plan for the entire duration of the degree. Students will indicate which focus area they are interested in and which electives they would like to take.

During orientation week, advisors will meet with each student to review and approve the proposed study plan. Students should continue to consult their advisors throughout their time at Rice to revise their study plans as necessary. Consultation is especially important before enrollment in courses for the next semester. Students should schedule regular faculty/student meetings with their faculty advisor on a monthly basis.

Students identified to not be making adequate progress must meet with the METS Office and advising faculty to determine a plan with goals and deadlines on how to get back on track.

OTHER REGULATIONS

All graduate students are expected to maintain continuous enrollment, unless an official leave of absence has been granted. The procedure for obtaining a leave of absence is outlined in the General Announcements.

Problems or conflicts may arise during a student's graduate education. Students should take responsibility for informing the appropriate faculty of any such problems. All parties involved should work together amicably with the goal of resolving the problem informally if at all possible. When attempts to resolve a problem informally do not meet with success, the grievance procedure outlined in the General Announcements will be adopted.

The advising faculty of both track programs form the Oversight Committee of the METS program that meets at least once a year to review the progress of the students, discuss student feedback, and assess the curriculum of each track to implement updates where needed. Student performance is monitored every semester to ensure successful completion of each student's degree requirements.

PLAGIARISM

At all universities in the U.S., including Rice University, plagiarism is considered academic misconduct. Students are expected to avoid plagiarism, either intentional or accidental. As described in Rice's Honor Code, plagiarized work can result in a failing course grade, expulsion, rejection of a paper submitted for publication, denial of an advanced degree, or loss of job. It is increasingly serious now that the Internet has made plagiarism easier than ever before.

View various forms of plagiarism and what to do to avoid its serious consequences at https://gpsdocs.rice.edu/orientation/Plagiarism_Hewitt_document.pdf

HONOR SYSTEM

The Honor System, one of the oldest and proudest traditions at Rice, is administered by the Honor Council, whose student members are elected each year by the student body. Adopted by a student vote in 1916, the Honor System has remained essentially the same since that time but for changes in the procedures and membership of the Honor Council.

Students take all written examinations and complete any specifically designated assignments under the Honor System. By committing themselves to the Honor System, all students accept responsibility for assuring the integrity of the examinations and assignments conducted under it. The Honor Council is responsible for investigating reported violations and for conducting a hearing when the facts warrant. The Office of Student Judicial Programs, which reviews the results of the investigations and hearings, considers the council's recommendations when issuing penalties.

The Honor Council conducts an ongoing program to acquaint new students and faculty with the Honor System. The Honor Code and other related information and resources are located at the homepage of the Honor Council: <http://honor.rice.edu/>

CODE OF CONDUCT

The Office of Student Judicial Programs oversees the judicial system and enforces the Code of Student Conduct, which governs the administration of student order and discipline and participates in Title IX investigations. The Code of Student Conduct applies to all students, including undergraduate, graduate, and transfer students; those enrolled in professional and Continuing Studies programs; and visiting students, Visiting Post Baccalaureates, second degree students, and auditors, from the time they arrive on campus for orientation until their degree is conferred or they have permanently left Rice. Organizations also are subject to this Code. All enrolled students also are subject to Rice University policies, rules, and regulations.

Alleged violations of university or college rules are handled in accordance with the Code of Student Conduct. Students may appeal decisions as described in the Code of Student Conduct. Rice retains ultimate authority in all matters of discipline and over all actions that affect its educational function or the safety and wellbeing of members of the university community.

The Code of Student Conduct and other related information and resources are located at: <https://sjp.rice.edu/code-of-student-conduct>

After Rice's grievance process has been exhausted and documented, students may also pursue an external complaints process.

Important Information available on the Online General Announcements:

Academic Probation and Dismissals and Petitions and Appeals
<https://ga.rice.edu/graduate-students/rights-responsibilities/dispute-resolution/>

Title IX Information:

Rice encourages any student who has experienced an incident of sexual, relationship, or other interpersonal violence, harassment or gender discrimination to seek support. There are many options available both on and off campus for all graduate students, regardless of whether the perpetrator was a fellow student, a staff or faculty member, or someone not affiliated with the university.

Students should be aware when seeking support on campus that most employees are required by Title IX to disclose all incidents of non-consensual interpersonal behaviors to Title IX professionals on campus who can act to support that student and meet their needs. The

therapists at the Rice Counseling Center and the health care providers at Student Health Services are confidential, meaning that Rice will not be informed about the incident if a student discloses to one of these Rice staff members. Rice prioritizes student privacy and safety and only shares disclosed information on a need-to-know basis.

If you are in need of assistance or simply would like to talk to someone, please call Rice Wellbeing and Counseling Center, which includes Title IX Support:
Extension 3311 or (713) 348-3311

Policies, including Sexual Misconduct Policy and Student Code of Conduct, and more information regarding Title IX can be found [here](#).

Wellbeing and Mental Health

The Wellbeing and Counseling Center at Rice University

[The Wellbeing and Counseling Center](#) supports student development and success by providing a good first point of contact for students who want to talk to someone about solutions to their well-being and mental health concerns.

[Download Rice's Wellbeing Guide for Graduate Students here.](#)

The Wellbeing and Counseling Center envisions a Rice community in which all persons develop and thrive as individuals, and who strive to create a community of care, respect, and integrity for all.

Should you like to speak to someone, but are unsure who you need to talk to, you can visit the resource matcher page or give them a call 713-348-3311. They will make sure you are matched with the Office that best meets your needs.

The Center for Career Development

The [Center for Career Development \(CCD\)](#) supports graduate students at every stage of their career journey, from identifying professional goals to navigating the job market. CCD services include one-on-one career coaching, resume and CV review, interview preparation, and access to Rice's global alumni and employer network. Graduate students are encouraged to explore programming designed specifically for academic and non-academic career paths.

Log into 12twenty today: [12twenty](#) is your one-stop shop for your personalized career development journey.



RICE UNIVERSITY
Center for Career Development

HOW CAN THE CCD *help me?*



1:1 APPOINTMENTS

CCD career counselors support all career development needs. Meet virtually or in person—no prep needed. We also have Peer Career Advisors to help you with resume reviews and interview prep.



EMPLOYER EVENTS

Explore the "Events" page in 12twenty for opportunities to meet 100+ employers to discover unique internship and job opportunities, including the CCD Career and Internship Expo.



OWL EDGE EXTERNSHIPS

A short-term job shadowing experience hosted by Rice Alumni, parents, and friends of the university. These experiences are designed to provide first-hand insight into specific professional environments and organizational cultures.



WORKSHOPS

45 minute long sessions, great starting points to learn more about how to craft a resume, network, or how to prepare for an interview.



RESOURCE LIBRARY

24/7 access to customized resources for any career development needs via the "Resource Library" in your 12twenty account.

 ccd@rice.edu

 ccd.rice.edu



RICE UNIVERSITY
Center for Career Development

WHY SHOULD I USE *12twenty?*

12twenty is your **one-stop shop** for a personalized career development journey at Rice University. Use 12twenty to:

- **Apply** for internships and full-time positions
- **Schedule** career counseling appointments
- **Register** for workshops and events
- **Access** career research tools

Scan to visit
rice.12twenty.com



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ccd.rice.edu