Professional Science Master’s
Wiess School of Natural Sciences

Graduate Degree Requirements and Procedures

Dean of Natural Sciences: Dr. Thomas Killian
Program Director: Dagmar Beck

www.profms.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 Wiess School of Natural Sciences offers five degrees through the Professional Science Master’s Program.

**The Master of Science in Applied Chemical Sciences** provides skills needed for work in government agencies, biotechnology units, chemical agencies, labs, chemical manufacturing units, oil industry, petroleum sector, pharmaceutical sector, heavy chemical firms and more.

**The Master of Science in Bioscience and Health Policy** provides skills needed for work in bio-scientific, health-related industries and governmental organizations. It aims to build leaders in science and health policy who will create, promote, and integrate science, medicine and practice.

**The Master of Science in Environmental Analysis** focuses on the methods needed by industrial and governmental organizations to deal with environmental issues.

**The Master of Science in Subsurface Geoscience** is geared for students who would like to become proficient in applying geological knowledge, geophysical methods and/or data management to finding, managing and developing reserves of oil and natural gas.

**The Master of Science in Space Studies** combines study of space engineering, aerospace, and life sciences, with courses in management, business and communication. It will train scientists/engineers to face challenges in human/robotic space exploration and space policy.

The curriculum for all professional science master’s degrees consists of required science courses, electives, cohort courses, and a three-to-six-month internship. This combination should enable the student to apply her/his scientific education in an industry environment.

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**GENERAL DEGREE REQUIREMENTS**
Each degree consists of science core courses, cohort courses, elective courses, and a three-to-six-month internship. Students must complete two reports on the internship experience and give a presentation during the Professional Master’s Seminar.

Professional Science Master’s students must take approximately 39 semester hours of upper-level courses (30 credit hours have to be at the 500-level or higher); the total hours depend upon the chosen degree and courses selected. At least 24 semester hours must be completed at Rice. 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 9 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 an intern position or graduation.

The general timeline for these degrees is three semesters of study to complete the required coursework, plus a three-to-six-month internship/work experience. Full-time students should be able to finish the degree in two years, and part-time students usually finish within 3 to 4 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 with advising faculty and adjusted over time to adapt to any changes in course offerings and career goals of student.

**Professional Science Master’s 5th Year Degree Option for Rice Undergraduates**

Rice students have an option to pursue a Professional Science 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 track director and the PSM 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.

**The Coordinated PSM/MBA Program Option**

To offer a deeper immersion into management and business acumen, the Professional Science Master’s Program at Rice has collaborated with the Rice Jones Graduate School of Business to offer an integrated PSM/MBA study option. Applications to both programs must be received at the same time. According to the Professional Science Master’s track focus, graduates are qualified for leadership roles in industries related to the environment, nanotechnology, energy, and government.
This coordinated degree program can be completed in 2 1/2 to 3 years. This dual degree includes a total of 45 hours of course work in business management and 30 credit hours in the chosen PSM track. Students will complete the same core requirements as the students in the regular MBA and PSM programs. Successful graduates from both degree programs will receive a Master of Science and an MBA degree.

Admission Requirements

To enter this coordinated degree program, applicants must apply and be accepted by both the Jones School of Business (JGSB) and one of the following Weiss School of Natural Sciences Professional Science Master’s (PSM) programs: Bioscience and Health Policy, Environmental Analysis and Decision Making, Subsurface Geoscience, or Space Studies. The program requires the JGSB application, two letters of recommendation, and the GRE.

Degree Requirements

Students may earn a Master of Science degree from the Wiess School of Natural Sciences’ Professional Science Master’s program in the following fields: (1) Applied Chemical Sciences, (2) Bioscience and Health Policy, (3) Environmental Analysis, (4) Subsurface Geoscience, or (5) Space Studies. Ordinarily, both the PSM and the MBA each take two academic years to complete. Coordinated degree candidates are required to fulfill a minimum of 5 full time, consecutive semesters (2.5 academic years). In rare cases, a sixth semester may be necessary; however, the standard progression is as follows and students must maintain the academic pace set out by their coordinated degree plan:

- PSM: a minimum of two consecutive full-time semesters
- MBA: a minimum of three consecutive full-time semesters

For the coordinated MBA/Master of Science degree from the Professional Master’s program, students must fulfill the following minimum requirements

- Complete 75 credit hours of course work including at least 30 credits in a science discipline and 45 credits of business course work
- Satisfy all MBA core curriculum requirements
- Satisfy all Professional Masters MS program-specific requirements
- Meet with the Coordinated-Degree Advisory Team each semester for academic advising and progress review
- Complete required summer internships
- Fulfill all requirements within a maximum of three full-time academic years

At the MBA and PSM discretion, a standard maximum of 6 credit hours of pre-degree-entry coursework may be transferred into the coordinated-degree. Students are not permitted, however, to take any MBA core courses prior to their official entry into the program.

Special circumstances (e.g., medical condition, familial obligation, et al.) can arise during a student’s academic career, which may require a temporary halt to academic pursuits (leave of absence or temporary withdrawal). In such cases, students are required to submit a written appeal with
supporting documentation (if applicable) requesting a leave of absence or temporary withdrawal. If jointly approved, a revised degree plan will be developed upon the student's return to the program. In the case of an approved academic leave of absence or temporary withdrawal, reenrollment must occur within three academic years from departure, and students are still expected to graduate with the coordinated degree within a maximum of five to six full time semesters.

**Program Cost Structure**

The following is the standard tuition structure:
- PSM: a minimum of two consecutive (Fall, Spring) semesters
- MBA: a minimum of three consecutive (Fall, Spring, Fall) semesters.

In rare cases a student may extend the program an additional sixth semester. The cost will be treated as follows:
- If a student enrolls in only PSM courses, then that semester's tuition will be the PSM rate.
- If a student enrolls in MBA or a combination of MBA/PSM courses, then that semester's tuition will be the MBA rate.

Scholarship funding may be awarded to a coordinated-degree student by one or both programs. In the case of MBA scholarships, funding eligibility is merit-based and determined at the point of admission into the program. In the case of PSM scholarships, funding may be awarded at the point of admission into the program or to current students. This funding is merit-based and determined through a holistic review of the quality of the application or the academic excellence of the current student. A scholarship given by a program is only available to the student during those semesters that the student is billed for that program’s tuition (Example: An MBA scholarship is only available during the semesters MBA tuition is billed).

Due to changes in tuition and fees from one academic year to the next, students returning from a leave of absence or temporary withdrawal will be billed at the current class rate for MBA and/or at the current academic year rate for PSM.
APPLIED CHEMICAL SCIENCES DEGREE

Graduate students in the Applied Chemical Science program will take the following courses:

*Check availability on the Registrar's Office Course Schedule site*

Substitutions can be approved by advising faculty

**Required Cohort Classes (9 credit hours)**
- NSCI 501  PROFessional Master's Seminar (2 semesters required)
- NSCI 511  Science Policy, and Ethics
- NSCI 512  Professional Master's Project (taken after internship)
- NSCI 610/ENGI 610  Management for Science and Engineering

**Required Core Chemistry Classes (9 credit hours)**
- CHEM 590  Professional Masters Seminar in Applied Chemistry
- CHEM 591  Research Laboratory Experience
- CHEM 592  Statistical Data Analysis

**Electives: (9 Credit Hours)** Select 9 credit hours from the list below. Note: MGMT courses are typically 1.5 credit hours
- EEPS 585  Computational and Data Science in the Energy Industry
- EEPS 587  SEM: Petroleum Geochemistry - Principals and Practice
- ENGI 515  Leading Teams and Innovation
- ENGI 542  Professional Communication for Engineering Leaders
- ENGI 614  Learning How to Innovate?
- MGMT 610  Fundamentals of the Energy Industry
- MGMT 625  Design Thinking
- MGMT 633  Physicians, Scientists, Engineers and MBA's in Startups
- MGMT 676  Social Enterprise
- MGMT 686  Introduction to Marketing Research
- MGMT 689  Decision Models
- MGMT 717  Project Management
- MGMT 721  Business Law
- MGMT 747  Regulatory Environment of Business
- MGMT 771  Digital Marketing
- NSCI 515  Foundations of Project and Program Management

**Area of Specialization (12 Credit Hours)**
*Students must select 1 area of specialization from the list below*

1. Bioorganic Chemistry
2. Computational Chemistry and Data Science
3. Petroleum Chemistry
Bioorganic Chemistry Specialization
Select a minimum of 4 courses (minimum of 12 credit hours) from the following:

- CHEM 501 ADVANCED ORGANIC CHEMISTRY
- CHEM 511 SPECTRAL METHODS IN ORGANIC CHEMISTRY
- CHEM 542 MEDICINAL CHEMISTRY I
- CHEM 547 SUPRAMOLECULAR CHEMISTRY
- CHEM 548 OR PEPTIDE CHEMISTRY DESIGN, SYNTHESIS AND STRUCTURE
- CHEM 554 DRUG DISCOVERY AT THE INTERFACE OF CHEM AND BIOLOGY

Computational Chemistry and Data Science Specialization
Select a minimum of 4 courses (minimum of 12 credit hours) from the following:

- CHEM 515 CHEMICAL KINETICS AND DYNAMICS
- CHEM 523 MOLECULAR DYNAMICS METHODS
- CHEM 537 BIOPHYSICAL CHEMISTRY
- CHEM 551 BIOMOLECULAR CONCEPTS
- CHBE 505 ADVANCED NUMERICAL METHODS WITH ENGINEERING APPLICATIONS
- EEPS 585 COMPUTATIONAL AND DATA SCIENCE IN THE ENERGY INDUSTRY
- EEPS 587 SEM: PETROLEUM GEOCHEMISTRY - PRINCIPALS AND PRACTICE
- STAT 532 FOUNDATIONS OF STATISTICAL INFERENCE I
- STAT 533 FOUNDATIONS OF STATISTICAL INFERENCE II
- STAT 535 DATA SCIENCE PROJECTS

Petroleum Chemistry Specialization
Select a minimum of 4 courses (minimum of 12 credit hours) from the following:

- CHEM 511 SPECTRAL METHODS IN ORGANIC CHEMISTRY
- CHEM 520 CLASSICAL AND STATISTICAL THERMODYNAMICS
- CHEM 533 NANOSCIENCE AND NANOTECHNOLOGY I
- CHEM 547 SUPRAMOLECULAR CHEMISTRY
- CHBE 505 ADVANCED NUMERICAL METHODS WITH ENGINEERING APPLICATIONS
- CHBE 550 PETROLEUM PHASE BEHAVIOR AND FLOW ASSURANCE

TOTAL REQUIRED CREDIT HOURS: 39

A three-to-six-month internship: Practical experience is offered via a three-to-six-month work immersion. The internship will be under the guidance of a host company, government agency, or non-profit organization. A summary of the internship project is required in both oral and written form as part of the Professional Master’s Seminar.

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.

BIOSCIENCE AND HEALTH POLICY DEGREE
Graduate students in the Bioscience and Health Policy program will take the following courses:

*Check availability on the [Registrar’s Office Course Schedule site](#)*

*Substitutions can be approved by advising faculty*

**Four Required Bioscience Classes:** Select 12 credit hours from below as available:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>BIOS 520</td>
<td>MOLECULAR BASIS OF DISEASES</td>
</tr>
<tr>
<td>BIOS 523</td>
<td>CONSERVATION BIOLOGY</td>
</tr>
<tr>
<td>BIOS 524</td>
<td>MICROBIOLOGY &amp; BIOTECHNOLOGY</td>
</tr>
<tr>
<td>BIOS 525</td>
<td>PLANT MOLECULAR GENETICS AND DEVELOPMENT</td>
</tr>
<tr>
<td>BIOS 534</td>
<td>EVOLUTION</td>
</tr>
<tr>
<td>BIOS 543</td>
<td>DEVELOPMENTAL NEUROBIOLOGY</td>
</tr>
<tr>
<td>BIOS 547</td>
<td>EXPERIMENTAL BIOLOGY AND THE FUTURE OF MEDICINE</td>
</tr>
<tr>
<td>BIOS 549</td>
<td>ADVANCED CELL AND MOLECULAR NEUROSCIENCE</td>
</tr>
<tr>
<td>BIOS 550</td>
<td>VIRUSES AND INFECTIOUS DISEASES</td>
</tr>
<tr>
<td>BIOS 560</td>
<td>CANCER BIOLOGY</td>
</tr>
<tr>
<td>BIOS 570</td>
<td>COMPUTATION WITH BIOLOGICAL DATA</td>
</tr>
<tr>
<td>BIOS 572</td>
<td>IMMUNOLOGY</td>
</tr>
<tr>
<td>BIOS 585</td>
<td>FUNDAMENTALS OF CELLULAR AND MOLECULAR NEUROSCIENCE</td>
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**Required Cohort Courses (9 credit hours):**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>NSCI 501</td>
<td>PROFESSIONAL MASTER'S SEMINAR (2 semesters required)</td>
</tr>
<tr>
<td>NSCI 511</td>
<td>SCIENCE POLICY, AND ETHICS</td>
</tr>
<tr>
<td>NSCI 512</td>
<td>PROFESSIONAL MASTER'S PROJECT (taken after internship)</td>
</tr>
<tr>
<td>NSCI 610/ENGI 610</td>
<td>MANAGEMENT FOR SCIENCE AND ENGINEERING</td>
</tr>
</tbody>
</table>

**Four Statistics, Economics, and Policy Courses:**

*The analytical competency requirement provides career-enhancing, marketable skills in policy analysis, economics and statistics. Students will take courses from groups A, B and C as indicated below:*

**A – Select one course related to Statistics / Data Analytics (a minimum of 3 credit hours)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>BIOE 552</td>
<td>INTRO COMPUTATIONAL SYSTEMS BIOLOGY</td>
</tr>
<tr>
<td>BIOS 538</td>
<td>ANALYSIS AND VISUALIZATION OF BIOLOGICAL DATA</td>
</tr>
<tr>
<td>DSCI 535</td>
<td>APPLIED MACHINE LEARNING AND DATA SCIENCE PROJECTS</td>
</tr>
<tr>
<td>EEPS 586</td>
<td>DATA SCIENCE METHODS AND DATA MANAGEMENT</td>
</tr>
<tr>
<td>STAT 553</td>
<td>BIOSTATISTICS</td>
</tr>
<tr>
<td>STAT 605</td>
<td>R FOR DATA SCIENCE</td>
</tr>
</tbody>
</table>

**B – Select One Economics/Finance Course (a minimum of 3 credit hours)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MGMT 631</td>
<td>HEALTH INSURANCE IN THE U.S.: THE ESSENTIALS</td>
</tr>
<tr>
<td>MGMT 678</td>
<td>BUSINESS OF HEALTHCARE</td>
</tr>
<tr>
<td>MGMT 690</td>
<td>HEALTHCARE STRATEGY</td>
</tr>
<tr>
<td>MGMT 751</td>
<td>ECONOMICS OF HEALTH CARE SECTORS</td>
</tr>
<tr>
<td>MGMT 793</td>
<td>CREATING THE DATA DRIVEN BUSINESS</td>
</tr>
<tr>
<td>PH 3910*</td>
<td>INTRODUCTION TO HEALTH ECONOMIC</td>
</tr>
</tbody>
</table>

**C – Select Two Policy Courses (a minimum of 6 credit hours)**

<table>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
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</thead>
<tbody>
<tr>
<td>ANTH 581</td>
<td>MEDICAL ANTHROPOLOGY</td>
</tr>
<tr>
<td>ANTH 643</td>
<td>ANTHROPOLOGY OF RACE, ETHNICITY AND HEALTH</td>
</tr>
</tbody>
</table>

*7/2021*
ASIA 556 GENOMIC GOVERNANCE IN ASIA
HEAL 580 DISPARITIES IN HEALTH IN AMERICA
MGMT 631 HEALTH INSURANCE IN THE U.S.: THE ESSENTIALS
MGMT 690 HEALTHCARE STRATEGY
MGMT 691 BREAKTHROUGH NEGOTIATIONS IN A HEALTH CARE CONTEXT
NSCI 530 THE SHAPING OF HEALTH POLICY (created for PSM students)
SOCI 525 POPULATION HEALTH SEMINAR

Minimum of Two Elective Courses (6 credit hours)
The electives reflect individual academic interests and career goals. Any course from the above list of courses can be taken as an elective, provided it was not taken as a required course.

ENGI 515 LEADING TEAMS AND INNOVATION
ENGI 529 ETHICS AND ENGINEERING LEADERSHIP
ENGI 614 LEARNING HOW TO INNOVATE?
ENGI 615 LEADERSHIP COACHING FOR ENGINEERS
HEAL 507 EPIDEMIOLOGY
HEAL 560 PLSN/EVAL OF HEALTH PROMOTION AND EDUCATION
MGMT 623 EARLY DEVELOPMENT AND ENTREPRENEURSHIP IN A STARTUP
MGMT 633 PHYSICIANS, SCIENTISTS, ENGINEERS AND MBA’S IN STARTUPS
MGMT 712 PROCESS MANAGEMENT AND QUALITY IMPROVEMENT
MGMT 721 BUSINESS LAW
MGMT 744 SERVICES OPERATIONS
MGMT 778 CUSTOMER EXPERIENCE MANAGEMENT
MGMT 793 CREATING THE DATA DRIVEN BUSINESS
MGMT 799 HEALTHCARE INNOVATION AND ENTREPRENEURSHIP
NSCI 515 FOUNDATIONS OF PROJECT AND PROGRAM MANAGEMENT

A three-to-six-month internship: Practical experience is offered via a three-to-six-month work immersion. The internship will be under the guidance of a host company, government agency, or non-profit organization. A summary of the internship project is required in both oral and written form as part of the Professional Master’s Seminar.

TOTAL REQUIRED CREDIT HOURS: 39

*Students can also choose electives from courses offered at UT Graduate School of Biomedical Sciences (GS), Health Science Center (PH), and UT School of Biomedical Informatics (HI) as listed above.

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.
ENVIRONMENTAL ANALYSIS DEGREE

Graduate students in the Environmental Analysis program will take the following courses:

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

**Required Science Core Courses (9 credit hours):**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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<tbody>
<tr>
<td>CEVE 501</td>
<td>OR CHEMISTRY FOR ENVIRONMENTAL ENGINEERING &amp; SCIENCE</td>
</tr>
<tr>
<td>CEVE 510</td>
<td>PRINCIPLES OF ENVIRONMENTAL ENGINEERING</td>
</tr>
<tr>
<td>BIOS 571</td>
<td>ECOSYSTEM MANAGEMENT - Overview</td>
</tr>
<tr>
<td>STAT 685</td>
<td>ENVIRONMENTAL STATISTICS AND DECISION MAKING</td>
</tr>
</tbody>
</table>

**Required Cohort Courses (9 credit hours):**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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<tbody>
<tr>
<td>NSCI 501</td>
<td>PROFESSIONAL MASTER'S SEMINAR (2 semesters required)</td>
</tr>
<tr>
<td>NSCI 511</td>
<td>SCIENCE POLICY, AND ETHICS</td>
</tr>
<tr>
<td>NSCI 512</td>
<td>PROFESSIONAL MASTER'S PROJECT (taken after internship)</td>
</tr>
<tr>
<td>NSCI 610/ENGI 610</td>
<td>MANAGEMENT FOR SCIENCE AND ENGINEERING</td>
</tr>
</tbody>
</table>

**Elective Courses**

*Students will choose 21 credit hours elective of courses from the following three focus areas and satisfying the following requirements:*

- one course (3 credits) from each of EBIO, CEVE and STAT,
- one course (3 credits) from the Management and Policy focus area,
- three courses (9 credits) from one focus area.

**Environmental Sustainability**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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<tbody>
<tr>
<td>CEVE 501</td>
<td>CHEMISTRY FOR ENVIRONMENTAL ENGINEERING AND SCIENCE</td>
</tr>
<tr>
<td>CEVE 502</td>
<td>SUSTAINABLE DESIGN</td>
</tr>
<tr>
<td>CEVE 507</td>
<td>ENERGY AND THE ENVIRONMENT</td>
</tr>
<tr>
<td>CEVE 508</td>
<td>INTRODUCTION TO AIR POLLUTION CONTROL</td>
</tr>
<tr>
<td>CEVE 509</td>
<td>HYDROLOGY AND WATER RESOURCES ENGINEERING</td>
</tr>
<tr>
<td>CEVE 511</td>
<td>ATMOSPHERIC PROCESSES</td>
</tr>
<tr>
<td>CEVE 518</td>
<td>ENVIRONMENTAL HYDROGEOLOGY</td>
</tr>
<tr>
<td>CEVE 520</td>
<td>ENVIRONMENTAL REMEDIATION RESTORATION</td>
</tr>
<tr>
<td>CEVE 523</td>
<td>APPLIED SUSTAINABLE PLANNING AND DESIGN</td>
</tr>
<tr>
<td>CEVE 526</td>
<td>SMART MATERIALS FOR THE ENVIRONMENT</td>
</tr>
<tr>
<td>CEVE 534</td>
<td>FATE AND TRANSPORT OF CONTAMINANTS IN THE ENVIRONMENT</td>
</tr>
<tr>
<td>CEVE 535</td>
<td>PHYSICAL CHEMICAL PROCESSES FOR WATER QUALITY CONTROL</td>
</tr>
<tr>
<td>CEVE 536</td>
<td>ENVIRONMENTAL BIOTECHNOLOGY AND BIOREMEDIATION</td>
</tr>
<tr>
<td>CEVE 544</td>
<td>ENVIRONMENTAL MICROBIOLOGY AND MICROBIAL ECOLOGY</td>
</tr>
<tr>
<td>CEVE 550</td>
<td>ENVIRONMENTAL ORGANIC CHEMISTRY</td>
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<tr>
<td>Course Code</td>
<td>Course Title</td>
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<tr>
<td>BIOS 523</td>
<td>CONSERVATION BIOLOGY</td>
</tr>
<tr>
<td>BIOS 563</td>
<td>TOPICS IN ECOLOGY</td>
</tr>
<tr>
<td>BIOS 568</td>
<td>TOPICS IN ECOLOGY (SPRING)</td>
</tr>
<tr>
<td>BIOS 569</td>
<td>CORE COURSE IN ECOLOGY AND EVOLUTIONARY BIOLOGY</td>
</tr>
<tr>
<td>BIOS 573</td>
<td>CORAL REEF ECOSYSTEMS</td>
</tr>
<tr>
<td>BIOS 580</td>
<td>SUSTAINABLE DEVELOPMENT</td>
</tr>
<tr>
<td>BIOS 595</td>
<td>TOPICS IN ENVIRONMENTAL SCIENCE</td>
</tr>
<tr>
<td>DSCI 535</td>
<td>APPLIED MACHINE LEARNING AND DATA SCIENCE PROJECTS</td>
</tr>
<tr>
<td>EEPS 592</td>
<td>EARTH’S RESOURCES IN A CHANGING WORLD</td>
</tr>
<tr>
<td>EEPS 632</td>
<td>QUANTITATIVE HYDRO GEOLOGY</td>
</tr>
<tr>
<td>EEPS 635</td>
<td>REMOTE SENSING</td>
</tr>
<tr>
<td>EEPS 645</td>
<td>EARTH AND PLANETARY INTERIORS</td>
</tr>
<tr>
<td>EEPS 695</td>
<td>GRAPHIC AND VISUAL DESIGN FOR SCIENTISTS</td>
</tr>
<tr>
<td>MGMT 658</td>
<td>APPLIED RISK MANAGEMENT</td>
</tr>
<tr>
<td>MGMT 758</td>
<td>ENVIRONMENTAL, SOCIAL AND GOVERNANCE ISSUES IN STRATEGY</td>
</tr>
</tbody>
</table>

**Management and Policy**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>CEVE 506</td>
<td>INTRODUCTION TO ENVIRONMENTAL LAW</td>
</tr>
<tr>
<td>CEVE 528/ENGI 528</td>
<td>ENGINEERING ECONOMICS</td>
</tr>
<tr>
<td>CEVE 529/ENGI 529</td>
<td>ETHICS AND ENGINEERING LEADERSHIP</td>
</tr>
<tr>
<td>GLBL 543</td>
<td>ENERGY POLICY</td>
</tr>
<tr>
<td>MGMT 609</td>
<td>MANAGING ENERGY TRANSITIONS</td>
</tr>
<tr>
<td>MGMT 610</td>
<td>FUNDAMENTALS OF THE ENERGY INDUSTRY</td>
</tr>
<tr>
<td>MGMT 661</td>
<td>INTERNATIONAL BUSINESS LAW</td>
</tr>
<tr>
<td>MGMT 670</td>
<td>OPERATIONS STRATEGY</td>
</tr>
<tr>
<td>MGMT 676</td>
<td>SOCIAL ENTERPRISE</td>
</tr>
<tr>
<td>MGMT 721</td>
<td>BUSINESS LAW</td>
</tr>
<tr>
<td>MGMT 757</td>
<td>REGULATORY ENVIRONMENT OF BUSINESS</td>
</tr>
<tr>
<td>MGMT 758</td>
<td>ENVIRONMENTAL, SOCIAL AND GOVERNANCE ISSUES IN STRATEGY</td>
</tr>
<tr>
<td>NSCI 515</td>
<td>FOUNDATIONS OF PROJECT AND PROGRAM MANAGEMENT</td>
</tr>
</tbody>
</table>

**Quantitative Decision-Making**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOS 538</td>
<td>BIO DATA ANALYSIS</td>
</tr>
<tr>
<td>CEVE 528/ENGI 528</td>
<td>ENGINEERING ECONOMICS</td>
</tr>
<tr>
<td>DSCI 535/COMP 549</td>
<td>MACHINE LEARNING AND DATA SCIENCE PROJECTS</td>
</tr>
<tr>
<td>ECON 437</td>
<td>ENERGY ECONOMICS</td>
</tr>
<tr>
<td>EEPS 586</td>
<td>DATA SCIENCE TOOLS, METHODS, AND BEST PRACTICES</td>
</tr>
<tr>
<td>EEPS 635</td>
<td>REMOTE SENSING</td>
</tr>
<tr>
<td>EEPS 645</td>
<td>EARTH AND PLANETARY INTERIORS</td>
</tr>
<tr>
<td>EEPS 636</td>
<td>GEOGRAPHIC INFORMATION SCIENCE</td>
</tr>
<tr>
<td>EEPS 695</td>
<td>GRAPHIC AND VISUAL DESIGN FOR SCIENTISTS</td>
</tr>
<tr>
<td>STAT 553</td>
<td>BIODESTATISTICS</td>
</tr>
<tr>
<td>STAT 605</td>
<td>OR R FOR DATA SCIENCE</td>
</tr>
</tbody>
</table>

7/2021
A three-to-six-month internship: Practical experience is offered via a three-to-six-month work immersion. The internship will be under the guidance of a host company, government agency, or non-profit organization. A summary of the internship project is required in both oral and written form as part of the Professional Master's Seminar.

TOTAL REQUIRED CREDIT HOURS: 39

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

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SUBSURFACE GEOSCIENCE DEGREE

There are three focus areas in the Subsurface Geoscience program: Geology, Geophysics, and Energy Data Management

Check availability on the Registrar’s Office Course Schedule site. Substitutions can be approved by advising faculty

Graduate students in the Subsurface Geoscience program will take the following courses:

**Core Requirements for all 3 Specializations (12-13 credit hours):**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>EEPS 548</td>
<td>3D SEISMIC REFLECTION DATA INTERPRETATION</td>
</tr>
<tr>
<td>EEPS 579</td>
<td>HYDROCARBON SYSTEMS ANALYSIS (4 CREDIT HOURS)</td>
</tr>
<tr>
<td>EEPS 583</td>
<td>DATA MANAGEMENT AND DATA GOVERNANCE</td>
</tr>
<tr>
<td>EEPS 659</td>
<td>WELL LOGGING AND PETROPHYSICS</td>
</tr>
</tbody>
</table>

**Required Cohort Courses (9 credit hours):**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>NSCI 501</td>
<td>PROFESSIONAL MASTER’S SEMINAR (2 semesters required)</td>
</tr>
<tr>
<td>NSCI 511</td>
<td>SCIENCE POLICY, AND ETHICS</td>
</tr>
<tr>
<td>NSCI 512</td>
<td>PROFESSIONAL MASTER’S PROJECT (taken after internship)</td>
</tr>
<tr>
<td>NSCI 610/ENGI 610</td>
<td>MANAGEMENT FOR SCIENCE AND ENGINEERING</td>
</tr>
</tbody>
</table>

**Area of Specialization: 18-19 Credit Hours**

Select 1 of the following Areas of Specialization

1. Energy Data Management
2. Geology
3. Geophysics

**ENERGY DATA MANAGEMENT FOCUS AREA:**

**Required Courses (9 credit hours)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>EEPS 584</td>
<td>DATA SCIENCE ENVIRONMENTAL AND GEOSCIENCES</td>
</tr>
<tr>
<td>EEPS 585</td>
<td>COMPUTATIONAL AND DATA SCIENCE IN THE ENERGY INDUSTRY</td>
</tr>
<tr>
<td>EEPS 586</td>
<td>DATA SCIENCE METHODS AND DATA MANAGEMENT</td>
</tr>
</tbody>
</table>

**Electives (12 credit hours)**

Students will choose 12 credit hours from the following electives:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEVE 528/ENGI 528</td>
<td>ENGINEERING ECONOMICS</td>
</tr>
<tr>
<td>CHBE 548</td>
<td>ENERGY SYSTEMS AND SUSTAINABLE DEVELOPMENT</td>
</tr>
<tr>
<td>COMP 543</td>
<td>GRADUATE TOOLS AND MODELS - DATA SCIENCE</td>
</tr>
<tr>
<td>COMP 556/ELEC 556</td>
<td>INTRODUCTION TO COMPUTER NETWORKS</td>
</tr>
<tr>
<td>DSCI 535</td>
<td>MACHINE LEARNING AND DATA SCIENCE PROJECTS</td>
</tr>
</tbody>
</table>
GEOLOGY FOCUS AREA:

Required Courses (6 credit hours)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>EEPS 630 OR</td>
<td>SEQUENCE STRATIGRAPHY OR</td>
</tr>
<tr>
<td>EEPS 530</td>
<td>SILICICLASTIC DEPOSITIONAL SYSTEMS</td>
</tr>
<tr>
<td>EEPS 654 OR</td>
<td>2D SEISMIC STRUCTURE AND STRAT</td>
</tr>
<tr>
<td>EEPS 661</td>
<td>STRUCTURE AND EVOLUTION OF TECTONIC SYSTEMS</td>
</tr>
</tbody>
</table>

Electives (12 credit hours)

Students will choose 12 credit hours from the following electives:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHBE 548</td>
<td>ENERGY SYSTEMS AND SUSTAINABLE DEVELOPMENT</td>
</tr>
<tr>
<td>EEPS 525</td>
<td>APPLIED SEDIMENTOLOGY I</td>
</tr>
<tr>
<td>EEPS 530</td>
<td>SILICICLASTIC DEPOSITIONAL SYSTEMS</td>
</tr>
<tr>
<td>EEPS 545</td>
<td>THEORETICAL GLOBAL SEISMOLOGY I</td>
</tr>
<tr>
<td>EEPS 578</td>
<td>HYDROCARBON EXPLORATION</td>
</tr>
<tr>
<td>EEPS 579</td>
<td>HYDROCARBON SYSTEMS ANALYSIS</td>
</tr>
<tr>
<td>EEPS 580</td>
<td>SEMINAR: QUANTITATIVE PETROLEUM SYSTEMS ANALYSIS 2</td>
</tr>
<tr>
<td>EEPS 592</td>
<td>TOPICS IN EARTH, ENVIRONMENTAL &amp; PLANETARY SCIENCES</td>
</tr>
<tr>
<td>EEPS 615</td>
<td>GEOCHEMISTRY OF EARTH'S SURFACE</td>
</tr>
<tr>
<td>EEPS 630</td>
<td>SEQUENCE STRATIGRAPHY</td>
</tr>
<tr>
<td>EEPS 633</td>
<td>CLIMATE DYNAMICS</td>
</tr>
<tr>
<td>EEPS 634</td>
<td>CLIMATE OF THE COMMON ERA</td>
</tr>
<tr>
<td>EEPS 636</td>
<td>GIS FOR SCIENTISTS AND ENGINEERS</td>
</tr>
<tr>
<td>EEPS 648</td>
<td>EXPLORATION GEOPHYSICS</td>
</tr>
<tr>
<td>EEPS 654</td>
<td>2D SEISMIC STRUCTURE AND STRAT</td>
</tr>
<tr>
<td>EEPS 658</td>
<td>ENVIRONMENTAL &amp; APPLIED ROCK PHYSICS</td>
</tr>
<tr>
<td>EEPS 660</td>
<td>GLOBAL TECTONICS</td>
</tr>
<tr>
<td>EEPS 661</td>
<td>STRUCTURE AND EVOLUTION OF TECTONIC SYSTEMS</td>
</tr>
<tr>
<td>EEPS 662</td>
<td>TECTONOPHYSICS</td>
</tr>
<tr>
<td>EEPS 667</td>
<td>GEOMECHANICS</td>
</tr>
<tr>
<td>EEPS 671</td>
<td>EARTH SYSTEMS MODELING I: PHILOSOPHY AND FUNDAMENTALS</td>
</tr>
<tr>
<td>NSCI 515</td>
<td>FOUNDATIONS OF PROJECT AND PROGRAM MANAGEMENT</td>
</tr>
</tbody>
</table>
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.

GEOPHYSICS FOCUS AREA:

Required Courses (6 credit hours)
EEPS 650 GEOPHYSICAL DATA ANALYSIS: DIGITAL SIGNAL PROCESSING
EEPS 651 GEOPHYSICAL DATA ANALYSIS: INVERSE METHODS

Electives (12 credit hours)
Students will choose 12 credit hours from the following electives:
CHBE 548 ENERGY SYSTEMS AND SUSTAINABLE DEVELOPMENT
EEPS 545 THEORETICAL GLOBAL SEISMOLOGY I
EEPS 578 HYDROCARBON EXPLORATION
EEPS 592 SPECIAL TOPICS IN EARTH, ENVIRONMENTAL & PLANETARY SCIENCES
EEPS 615 GEOCHEMISTRY OF EARTH'S SURFACE
EEPS 630 SEQUENCE STRATIGRAPHY
EEPS 633 CLIMATE DYNAMICS
EEPS 634 CLIMATE OF THE COMMON ERA
EEPS 636 GIS FOR SCIENTISTS AND ENGINEERS
EEPS 648 EXPLORATION GEOPHYSICS
EPPS 658 ENVIRONMENTAL & APPLIED ROCK PHYSICS
EEPS 660 GLOBAL TECTONICS
EEPS 661 STRUCTURE AND EVOLUTION OF TECTONIC SYSTEMS
EEPS 662 TECTONOPHYSICS
EEPS 667 GEOMECHANICS
EEPS 671 EARTH SYSTEMS MODELING I: PHILOSOPHY AND FUNDAMENTALS
NSCI 515 FOUNDATIONS OF PROJECT AND PROGRAM MANAGEMENT

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.

A three-to-six-month internship: Practical experience is offered via a three-to-six-month work immersion. The internship will be under the guidance of a host company, government agency, or non-profit organization. A summary of the internship project is required in both oral and written form as part of the Professional Master’s Seminar.

TOTAL REQUIRED CREDIT HOURS: 39 (minimum)
Note: An individual course may not be offered every year, and some courses may have pre-requisites or require instructor permission.

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SPACE STUDIES DEGREE

Required Core Science/Engineering Courses (9 credit hours)
ASTR 570          SOLAR SYSTEM PHYSICS
MECH 578          ORBITAL MECHANICS AND MISSION DESIGN
STAT 605          R FOR DATA SCIENCE

Choose two courses (6 credit hours) from the list below:
ASTR 554          ASTROPHYSICS OF THE SUN
PHYS 517          COMPUTATIONAL PHYSICS
PHYS 510          MAGNETOSPHERIC PHYSICS
CHBE 640          METABOLIC ENGINEERING
BIOS 524          MICROBIOLOGY AND BIOTECHNOLOGY
MECH 554/CEVE554  COMPUTATIONAL FLUID MECHANICS
MECH 592          DESIGN FOR AEROSPACE ENVIRONMENTS

Required Cohort Courses: (12 credit hours)
NSCI 501          PROFESSIONAL MASTER’S SEMINAR
NSCI 502          SPACE STUDIES SEMINAR
NSCI 511          SCIENCE POLICY, AND ETHICS
NSCI 512          PROFESSIONAL MASTER’S PROJECT
NSCI 515          FOUNDATIONS OF PROJECT AND PROGRAM MANAGEMENT
NSCI 610/ENGI 610  MANAGEMENT FOR SCIENCE AND ENGINEERING

ONE Statistics/Computation Courses (3 credit hours): The analytical competency requirement provides career-enhancing, marketable skills in finance, economics and computation. Students can choose courses as follows.
CAAM 550          NUMERICAL ANALYSIS I
CEVE 528/ENGI 528  ENGINEERING ECONOMICS
DSCI 535          MACHINE LEARNING AND DATA SCIENCE PROJECTS
EEPS 586          DATA SCIENCE METHODS AND MANAGEMENT
MECH 554          COMPUTATIONAL FLUID MECHANICS
PHYS 517          COMPUTATIONAL PHYSICS
STAT 502          NEURAL MACHINE LEARNING

Three Electives (9 credit hours): Select a minimum of 9 credit hours from one of the following areas, depending on the student’s individual interests and career goals.

Focus: Engineering
CEVE 504          ATMOSPHERIC PARTICULATE MATTER
CEVE 511          ATMOSPHERIC PROCESSES
CEVE 576  STRUCTURAL DYNAMIC SYSTEMS
COMP 598  INTRODUCTION TO ROBOTICS
ENGI 515  LEADING TEAMS AND INNOVATION
ENGI 614  LEARNING HOW TO INNOVATE?
MECH 554  COMPUTATIONAL FLUID MECHANICS
MECH 574  TURBULENCE
MECH 578  ORBITAL MECHANICS AND MISSION DESIGN
MECH 579  LAUNCH VEHICLE AND SPACECRAFT DESIGN
MECH 590  AEROSPACE PROPULSION
MECH 591  GAS DYNAMICS
MECH 592  DESIGN FOR AEROSPACE ENVIRONMENTS
MECH 594  INTRODUCTION TO AERONAUTICS
MECH 596  INTRODUCTION TO FLIGHT MECHANICS
MECH 691  INTRODUCTION TO HYPERSONIC AERODYNAMICS

Focus: Sciences (Astro Science/Earth Science/Life Sciences)
ASTR 542  NEBULAR ASTROPHYSICS
ASTR 554  ASTROPHYSICS OF THE SUN
ASTR 555  PROTOSTARS AND PLANETS
ASTR 565  COMPACT OBJECTS
BIOS 524  MICROBIOLOGY & BIOTECHNOLOGY
BIOS 543  DEVELOPMENTAL NEUROBIOLOGY
BIOS 570  COMPUTATION WITH BIOLOGICAL DATA
EEPS 540  CRYOSPHERE
EEPS 581  MODERN EXPLORATION TECHNOLOGY
EEPS 667  GEOMECHANICS
EEPS 672  NUMERICAL METHODS EARTH SYSTEMS
PHYS 510  MAGNETOSPHERIC PHYSICS
PHYS 541  RADIATIVE PROCESSES
PHYS 580  INTRODUCTION TO PLASMA PHYSICS
MGMT 633  PHYSICIANS, SCIENTISTS, ENGINEERS AND MBA’S IN STARTUPS

Focus: Management and Entrepreneurship
ENGI 515  LEADING TEAMS AND INNOVATION
ENGI 614  LEARNING HOW TO INNOVATE?
MGMT 601  FINANCIAL STATEMENT ANALYSIS
MGMT 618  BESTSELLERS: THE SCIENCE AND WISDOM
MGMT 629  BUSINESS PLAN DEVELOPMENT
MGMT 633  PHYSICIANS, SCIENTISTS, ENGINEERS AND MBA’S IN STARTUPS
MGMT 658  APPLIED RISK MANAGEMENT
MGMT 734  TECHNOLOGY ENTREPRENEURSHIP

A three-to-six-month internship: Practical experience is offered via a three-to-six-month work immersion. The internship will be under the guidance of a host company, government agency, or non-profit organization. A summary of the internship project is required in both oral and written form as part of the Professional Master’s Seminar.
TOTAL REQUIRED CREDIT HOURS: 39

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.
PROFESSIONAL DEVELOPMENT PROGRAM

Mentoring built into the PSM curriculum engages students, alumni, and affiliated community members in five strategic ways:

1. **Mentoring Program:**
The main purpose is to connect students with alumni and foster relationships that benefit both the alumni mentor and especially the student. This relationship gives the student an outlet to ask academic, professional and industry-specific questions and allows the alumni mentors an opportunity to educate the next generation of leaders in the field.

2. **Guest Lectures/Panel Discussions:**
The monthly seminars host a guest lecture that provides insights into industry-specific topics or related career paths for PSM students. These lectures are structured so that the students have ample time to engage the speaker in a lively discussion following their brief talk.

3. **Professional Development and Career Workshops:**
The PSM program works in close collaboration with the Rice Center for Career Development, encouraging students to attend workshops that help prepare students for the professional world at large. These workshops include resume and portfolio review, interview techniques, mock interviews, networking practice, et al. The workshops take place throughout the semester, preparing students for internships or full-time employment for the coming summer.

4. **Required Internships or Work Experience:**
All PSM students are required to complete a corporate or academic internship as part of the degree program. Corporate internship providers assign a mentor to their respective student intern, and this mentor is expected to provide guidance throughout the internship experience.

5. **PSM Industry Board of Affiliates:**
Board members are available to provide guidance, mentorship and advice to PSM students throughout their time at Rice.

**Expectations of PSM Mentoring Program:**

The PSM Office assigns an alumni and a student mentor to each incoming student during the summer before arriving at Rice. The incoming students have the responsibility to initiate contact and start a conversation with their mentors and to meet them in person. The PSM Office hosts a student/alumni social at the beginning of the first semester so students can meet their mentors in person.
STUDENT ADVISING

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.

Enrolled students or alumni contacts are provided to each new incoming student so they can choose a mentor for guidance during the first semester.

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

INTERNSHIP PROGRAM
Students should refer to the Professional Science Master's Program Internship Handbook, which outlines the stages of the internship process, provides copies of necessary forms, and lists guidelines for the employer.

**Internship Requirements**

In addition to coursework, we require a three-to-six-month internship as part of the Professional Science Master's program. This internship should provide the student with practical experience in an industrial or governmental environment, depending on the degree program, and bring about stronger university ties between the university and these organizations.

Internships will typically begin in the summer session after the first year of coursework. Six-month internships begin in the summer and end in December. The student would then complete the final semester of coursework in the spring semester. A three-month internship might take place during the summer session, allowing a student to complete the third semester of coursework in the fall. Alternatively, a three-month internship might begin midway through the summer session and end sometime during the fall. In most cases, the sponsoring company will financially support the intern during the internship period.

Full-time students who have adequate previous industrial experience, or working professionals enrolled on a part-time basis, may request to substitute an independent project for the internship requirement by submitting necessary information to the program committee and obtaining approval from the appropriate track director. Students may enroll in classes while completing the approved project.

Students hoping to perform their internship in a non-industrial setting should submit a memo to the program committee outlining the proposed internship and its relationship to the student's professional development to request permission for this variance.

Only students in good standing will be permitted to accept an internship position. Determination of a student's standing will include assessment of the student’s GPA (a minimum average of a B-(2.67) is required) and class participation in the Professional Master's Seminar. Furthermore, students must demonstrate a significant amount of effort in obtaining an internship.

If a full-time student is participating in an internship during the spring or fall semester, the student should register for the PSM internship course, NSCI 510, during that semester. This step will ensure that the student maintains full-time student status and remains eligible for student loans and Rice health insurance. The student will not be charged full tuition during this semester, only a minimal charge to maintain full-time status.

**Finding an Internship Position**

Students are encouraged to begin searching for an internship during their first semester of coursework. Students must demonstrate a significant amount of effort in obtaining an internship. Interviewing may begin as early as the first semester but should be underway no later than midway through the second semester. Rice’s Center for Career Development will help students
identify potential positions, prepare resumes, and train for interviews. Before the end of the first semester, students should have attended several career-related workshops offered by the Career Development Center. During the first semester of study, the student should submit a Student Learning Plan (which serves as an Internship Outline) and a resume to the PSM Program Director and schedule an appointment with the Center for Career Development to have their resume reviewed.

The PSM Office will establish regular checks on progress made by students in reaching out to corporate representatives, board members, et al. to make sure students work consistently on building their network and reaching out to potential employers.

The internship position should be directly related to the student’s area of study and suited to their career interests in a company, government agency, or national laboratory. Students should avoid internships that involve proprietary information or technologies that cannot be revealed to the faculty advisor or prospective employers. Although working with proprietary information can involve exposure to cutting edge developments, the requisite confidentiality defeats the purpose of providing the student with an experience that can be used to illustrate the student’s qualifications for other professional opportunities and creating knowledge that can be shared with others, which most master’s projects in all fields seek to do. Students who wish to undertake an internship that involves work that cannot be reported in an internship report must have the internship approved by their faculty advisors. It is not acceptable to turn in reports that omit the scientific or technical work done (the evidence that the student has applied his or her academic knowledge) on the grounds that the work is confidential.

Students will also have many opportunities to make contact with potential employers through Rice’s Career Fairs, Professional Science Master’s Seminars, PSM receptions and luncheons, PSM Board Members, university events, alumni contacts, and course professors. Students can also monitor job opportunities through Rice’s Center for Career Development and are encouraged to make use of the career/job research tools provided by them.
PROJECT REPORTS & PRESENTATIONS
GENERAL INSTRUCTIONS FOR ALL PROGRAMS

Objectives for Student Reports and Presentations
At the conclusion of the internship or independent project, students must present a summary of their project in both oral and written form. The goals are to:

a) Test the student’s abilities to organize and present information to different audiences,
b) Test the student's ability to make recommendations based on business goals, and
c) Evaluate the integration of academic knowledge and industry or not-for-profit experience obtained during the internship.

Expectations and Grading
Students will be assigned a letter grade for the quality of the two required reports (preliminary and final, described below) and presentation in the required course, Professional Master’s Project, NSCI 512.

In the case of an unsatisfactory presentation performance, a second presentation can be scheduled. A second unsatisfactory performance will result in dismissal from the program. PSM Communication Faculty can provide coaching in individual writing and presenting. Students are also encouraged to participate in report-writing/presenting workshops offered throughout the semester.

Grading Breakdown:

Project Outline (10% of grade) must be submitted with the Interim Evaluation/Assessment. This report should provide a company background (including target market and competitors) and a definition of one major assignment, project, or problem. The project outline might also contain a planned approach to the assignment or problem and an explanation of methods that will be used. (1 – 2 pages) – more details below.

Final report(s) (60% of grade) encapsulate both the technical and business aspects of the internship. For internships that are primarily technical in nature, the student must also address how the technical work fits into the business objectives of the employer. For internships that are primarily business in nature, the student must also address how the business development takes advantage of or benefits the technical aspects of the employer. Students should follow the format described in the Internship Report guidelines specified for their particular program (see below). While preparing the final report(s), the student learns how to address audiences of various knowledge levels and concerns, thus preparing the student for her/his role in technical business environments.

An oral presentation (30% of grade) will be given to an audience consisting of both scientific and business professionals as well as fellow students and professors.

• The PSM Office will schedule student presentations during the Professional Master’s Seminar.
• One week before giving the presentation, the student is required to complete at least one practice session with the PSM Communication Faculty or Center for Academic and Professional Communication (CAPC) consultants.
Detailed Description of Oral Presentation (ACS, EA, SG, and SPS Degree Programs*)

*Students in BHP Degree Program should see the description for Presentation under BHP Report Requirements

Students are required to practice the presentation either with the PSM Communication Faculty or the Center for Academic and Professional Communication.

Audience: Faculty members of the PSM Oversight Committee, faculty whom a student has worked with in the internship project, local members of the Board of Affiliates, representatives of the host company, fellow students, professors, and other appropriate guests.

Purpose: To communicate project background, problem definition, steps in investigation, and recommendations based upon technology and business goals. Technical data are presented to support the recommendations. The student must consider the audience’s expectations as well as its knowledge of business and technology.

Length: 20-25 minutes, plus 5-10 minutes for questions and answers (total length not to exceed 30 minutes).

Detailed Description of Project Outline (All Degree Programs)

Audience: Program Director and the student’s Faculty Advisor

Purpose: To communicate the scope of work accomplished on the project problem, the timeline for finishing the work (or handing it over to another person in the case of a continuing project), and the principal links between courses the student has taken and the work accomplished in the internship. This connection constitutes the student’s contribution to knowledge about the relationship between academic study and its applications, parallel to the intellectual insights otherwise documented in a thesis submitted for a master’s degree in other fields.

Length: 1-2 pages

Content: The scope of work accomplished on the project problem

(a) The timeline for finishing the work (or handing it over to another person in the case of a continuing project)

(b) The principal links between courses the student has taken and the work accomplished in the internship

(c) Short profile of the company

Sample Format: 1st paragraph: A short description of the company and the type of major project the student has been assigned. In some cases, students are given two or three small projects to enable them to experience a range of types of work the company does.

2nd paragraph: Summary of the degree of completion of the project and the general argument the student expects to make about the types
of connections between the courses taken and the project(s) done.

3rd paragraph: Estimate of work to be done in the remaining period, request for assistance needed (if any), problems to be solved (for example, approval process for disclosing information from the company), and so on.

References for Guidance:


Detailed instructions for Final Reports vary by degree program. Students should read the instructions for their particular degree program in the pages that follow.
To complete your ACS degree, one comprehensive report that includes both business and technical aspects of your internship is required (exceptions for non-typical projects that lack a business or technical aspect are described on the following page).

Prior to submitting the final report, all students are required to have the product reviewed by their internship supervisor and the Center for Academic and Professional Communication or the PSM program communication faculty for review and feedback. Due dates for fall semester: October 1st and for spring semester: March 1st. In addition, students are also required to have their presentation reviewed and practiced with either communication program no later than a week before their presentation date. The final report is due to be submitted to the advising faculty (with copy to PSM office) for grading after the students have given their oral presentation.

Late submissions will incur penalties and could impact graduation. Submission turned in after the last day of the final exam period will not be accepted, and therefore the student will not graduate on time.

**Audiences:**
- a) Management or supervisor/faculty internship advisor with whom a student has worked in the internship
- b) ACS program faculty advisor

**Purpose:**
- a) To communicate the project background, problem definition, steps in investigation, and solutions with an emphasis on technology and fit with company’s or organization’s product or technical goals
- b) To relate the technical work to the overall business objectives of the project/company

**Content:** This report should demonstrate the student’s scientific/technical knowledge that has been applied in the project, including any calculations or analysis required. Must include a specific section describing the business aspect to which the technical work applies.

**Length:** Approximately 15 double-spaced pages, not including figures, graphs, tables, references, and any appendices.

**Sample Report Format:**

**Summary (~1 page)**
In the same order as the report, the summary should discuss the overview of the company, how the intern’s work relates to goals of company, and major accomplishments in projects. Should stand alone.

Example of summary contents:
- Where you did your internship and description of the organization and how you fit into it,
- What was the goal for your internship,
- What specific project did you work on and how it fit with the master’s program,
- What you achieved during your internship (product created, work completed, etc.), and
- What future steps on your project will be done later either by someone else in the organization or by another researcher or organization.

**Project Background, Context, and Need for Project (~2-3 pages)**
- Description of organizational context including company background, company products and factors leading to project
- Company goals in product development or technical problems in company products/processes in need of solutions
- Steps in project definition
- Resulting technical goals

**Technical solution to the defined problem and goals (~4-5 pages, not including figures/tables)**
- Demonstration of student’s technical expertise through data analysis and discussion
- Geoscience and/or geophysical skill application, with data display, graphs and tables, with captions

**Business Section (~ 3-4 pages)**
- The relationship of the project to the company’s overall business strategy and goals
- The merits of the project in light of the technical and/or strategic goals of the company—i.e., costs and benefits
- How the project might benefit the company if recommendations or solutions were executed
- Recommended steps in executing the recommendations
- Resources needed for executing the recommendations

**EXCEPTIONS FOR NON-TYPICAL ACS INTERNSHIP PROJECTS**

A typical Applied Chemical Sciences Report is expected to have both technical and business aspects. However, if a student has no opportunity within the approved internship to conduct technical work or business-related work, he/she should seek permission from his/her faculty advisor to write a report emphasizing the predominant aspect of the non-typical project. (This exception might apply to a student conducting academic research for a faculty member, working in the business department of a company, etc.)

The non-typical report should emphasize the predominant aspect of the internship, i.e. business or technical, and be written in-depth with appropriate sections as outlined below:

**Business-Only EA Project Report**

**Executive Summary (~1 page)**
In the same order as the report, the summary should discuss the overview of the company, how the intern’s work relates to goals of company, and major accomplishments in projects. Should stand alone.

**Introduction (~2-3 pages)**
Sets stage by introducing project background including context within the company, what led to the project and/or problem to be solved, statement of the project, steps in investigation, solution (introduces product/process), benefits and or business reasons for project.

**Body (~4-6 pages)**
Discuss of recommended solution, including both technical and financial aspects. This section should explain the basis for the project and issues involved in carrying out the project within the context of the company’s goals. This section might include opportunity costs; risk analysis (health, environment, legal); relevant regulations; market potential; explanation of technology; assessment of alternative solutions; financial requirements or cost/benefit analysis; and explanation of results or work done.

**Brief Technical Section (~1 page)**
Include the following and any additional matters of relevance:
- The relationship and merits of the project to the company’s overall technical objectives and goals
- How the business solutions/recommendations impact the technical focus of the company or project

**Conclusion (~1 page)**
Recap of recommended solution(s) and the business rationale. May include ‘next steps.’

**Appendices (optional)**
Add any appendices illustrating results or related information necessary for acting upon the recommendation or understanding the report’s conclusion.

**Technical/Academic-Only EA Project Report:**

**Abstract (~1 page, double-spaced)**
A concise summary of the report, including project context, technical goals, materials/methods/approaches, results, implications and significance of outcomes, and real or potential applications. Should stand alone, without references to published literature or figures/tables.

**Project Background (~2-3 pages)**
Context for project, including background of the problem or investigation and factors leading to project. Should include appropriately referenced literature review. Include the researcher’s goals for project development or solution to technical problems in field.

**Body/Technical solution to the defined problem and goals (~4-6 pages)**
- Discussion of methods and approach to problem
- Demonstration of student’s technical expertise through calculations, data analysis, and discussion
- Geoscience and/or geophysical skill application, with data display, graphs and tables, with captions

**Conclusion (~1 page)**
• Discussion of how project supports applications of knowledge or development of better systems/techniques to real-world problems (i.e., to problems outside of academia, if project was in academic setting). May include ‘next steps.’


To complete your master’s degree, two reports—a business and a technical report—and a presentation are required. Preliminary copies of the reports are due seven weeks after the beginning of the semester (Fall – October 15th; Spring – March 1st). Final versions are due one week after the oral presentation. Presentations will be scheduled the 1st and 3rd Wednesdays in April or November at random.

Prior to turning in the preliminary copy and final copy of the report, all students are required to have the product reviewed by the Center for Academic and Professional Communication (CAPC) or the PSM program communication faculty. In addition, students are also required to have the presentation reviewed and practiced with either communication program. After the presentation, only one week is allowed for revisions prior to submitting the final version of the reports. Please address feedback and questions from the presentation in the final version. Late submissions will incur penalties and could impact graduation. Submission turned in after the last day of the final exam period will not be accepted, and therefore the student will not graduate on time.

1. **Report 1: The Business Report**
   - Traditionally this report is the shorter of the two required documents. It should be between 6 and 8 pages long. The report should be double-spaced in 10-12-point font. All figures and legends should be clear and legible.
   - This report should provide an overview of the internship and include the information below:
     - Where you did your internship and description of the organization and how you fit into it,
     - What was the goal for your internship,
     - What specific project did you work on and how it fit with the master’s program,
     - What you achieved during your internship (product created, work completed, etc.), and
     - What future steps on your project will be done later either by someone else in the organization or by another researcher or organization.
   - Information in this report should be the basis for the presentation.

   - Traditionally this report is the longer of the two final documents. The length should be between 12 and 20 pages. The paper should be double-spaced in 10-12-point font. All figures and legends should be clear and legible.
   - The technical report should be viewed as a policy report. It should highlight the area the student examined during their internship and their choice of a policy question to research further. The report should include a literature review of the policy issue including multiple perspectives (various sides of the argument). The report should conclude with general policy recommendations for addressing any issues targeted as well as future areas for research or discussion.
   - This report should provide a larger context for the internship efforts and why the issue(s) studied during the internship is (are) important.

3. **Presentation**
The purpose of the presentation is to communicate the project background, policy challenges addressed and how the work contributed to understanding of the issue.

If a student participates in multiple internships, then they can choose to focus on a policy topic which links the work together or focus on just one internship project.

Presentation format:
- The presentation should be 20-25 minutes in length, allowing 5 minutes for questions at the end.
- The presentation should include professional-quality slides to guide the discussion.
To complete your EA degree, one comprehensive report that includes both business and technical aspects of your internship is required (exceptions for non-typical projects that lack a business or technical aspect are described on the following page).

Prior to submitting the report, all students are required to have the product reviewed by the Center for Academic and Professional Communication or the PSM program communication faculty. In addition, students are also required to have the presentation reviewed and practiced with either communication program.

The report(s) are written as a draft so that students may have opportunities to incorporate feedback from communication faculty and program faculty as follows:

- **A draft of the final report(s)** should be submitted to the faculty advisor and the PSM Communication faculty during the middle of the semester following the internship/project completion (i.e., for fall semester: **October 1st** and for spring semester: **March 1st**), with a copy to be sent to the PSM Office. Within 4 weeks of submittal, reports will be evaluated by faculty and returned to the student for editing.
- **The revised final report(s)** should be submitted one week before the student’s oral presentation to the Degree Program Advisor, with copy to the PSM Office for grading.

Late submissions will incur penalties and could impact graduation. Submission turned in after the last day of finals will not be accepted and therefore the student will not graduate on time.

**Audiences:** Management or supervisor/faculty internship advisor with whom a student has worked in the internship  
EA program faculty advisor

**Purpose:** To communicate the project background, problem definition, steps in investigation, and solutions with an emphasis on technology and fit with company’s or organization’s product or technical goals  
To relate the technical work to the overall business objectives of the project/company

**Content:** This report should demonstrate the student’s scientific/technical knowledge that has been applied in the project, including any calculations or analysis required. Must include a specific section describing the business aspect to which the technical work applies.

**Length:** Approximately 15 double-spaced pages, not including figures, graphs, tables, references, and any appendices.

**Sample Report Format:**

**Summary (~1 page)**  
In the same order as the report, the summary should discuss the overview of the company, how the intern’s work relates to goals of company, and major accomplishments in projects. Should stand alone.  
Example of summary contents:
• Where you did your internship and description of the organization and how you fit into it,
• What was the goal for your internship,
• What specific project did you work on and how it fit with the master’s program,
• What you achieved during your internship (product created, work completed, etc.), and
• What future steps on your project will be done later either by someone else in the organization or by another researcher or organization.

Project Background, Context, and Need for Project (~2-3 pages)
• Description of organizational context including company background, company products and factors leading to project
• Company goals in product development or technical problems in company products/processes in need of solutions
• Steps in project definition
• Resulting technical goals

Technical solution to the defined problem and goals (~4-5 pages, not including figures/tables)
• Demonstration of student’s technical expertise through data analysis and discussion
• Geoscience and/or geophysical skill application, with data display, graphs and tables, with captions

Business Section (~ 3-4 pages)
• The relationship of the project to the company’s overall business strategy and goals
• The merits of the project in light of the technical and/or strategic goals of the company—i.e., costs and benefits
• How the project might benefit the company if recommendations or solutions were executed
• Recommended steps in executing the recommendations
• Resources needed for executing the recommendations

EXCEPTIONS FOR NON-TYPICAL EA INTERNSHIP PROJECTS

A typical Environmental Analysis Final Report is expected to have both technical and business aspects. However, if a student has no opportunity within the approved internship to conduct technical work or business-related work, he/she should seek permission from his/her faculty advisor to write a report emphasizing the predominant aspect of the non-typical project. (This exception might apply to a student conducting academic research for a faculty member, working in the business department of a company, etc.)

The non-typical report should emphasize the predominant aspect of the internship, i.e. business or technical, and be written in-depth with appropriate sections as outlined below:

Business-Only EA Project Report

Executive Summary (~1 page)
In the same order as the report, the summary should discuss the overview of the company, how the intern’s work relates to goals of company, and major accomplishments in projects. Should stand alone.
**Introduction (~2-3 pages)**
Sets stage by introducing project background including context within the company, what led to the project and/or problem to be solved, statement of the project, steps in investigation, solution (introduces product/process), benefits and or business reasons for project.

**Body (~4-6 pages)**
Discussion of recommended solution, including both technical and financial aspects. This section should explain the basis for the project and issues involved in carrying out the project within the context of the company’s goals. This section might include opportunity costs; risk analysis (health, environment, legal); relevant regulations; market potential; explanation of technology; assessment of alternative solutions; financial requirements or cost/benefit analysis; and explanation of results or work done.

**Brief Technical Section (~1 page)**
Include the following and any additional matters of relevance:
- The relationship and merits of the project to the company’s overall technical objectives and goals
- How the business solutions/recommendations impact the technical focus of the company or project

**Conclusion (~1 page)**
Recap of recommended solution(s) and the business rationale. May include ‘next steps.’

**Appendices (optional)**
Add any appendices illustrating results or related information necessary for acting upon the recommendation or understanding the report’s conclusion.

**Technical/Academic-Only EA Project Report:**

**Abstract (~1 page, double-spaced)**
A concise summary of the report, including project context, technical goals, materials/methods/approaches, results, implications and significance of outcomes, and real or potential applications. Should stand alone, without references to published literature or figures/tables.

**Project Background (~2-3 pages)**
Context for project, including background of the problem or investigation and factors leading to project. Should include appropriately referenced literature review. Include the researcher’s goals for project development or solution to technical problems in field.

**Body/Technical solution to the defined problem and goals (~4-6 pages)**
- Discussion of methods and approach to problem
- Demonstration of student’s technical expertise through calculations, data analysis, and discussion
• Geoscience and/or geophysical skill application, with data display, graphs and tables, with captions

**Conclusion (~1 page)**

• Discussion of how project supports applications of knowledge or development of better systems/techniques to real-world problems (i.e., to problems outside of academia, if project was in academic setting). May include 'next steps.'


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**Space Studies Internship Report**

To complete your SPS PSM degree, one comprehensive report that includes both *business and technical aspects* of your internship is required (exceptions for non-typical projects that lack a business or technical aspect are described on the following page).
Prior to submitting the final report, all students are required to have the product reviewed by their internship supervisor and the Center for Academic and Professional Communication or the PSM program communication faculty for review and feedback. Due dates for fall semester: October 1st and for spring semester: March 1st. In addition, students are also required to have the presentation reviewed and practiced with either communication program latest a week before their presentation date. The final report is due to be submitted to the advising faculty (with copy to PSM office) for grading after the students have given their oral presentations.

Late submissions will incur penalties and could impact graduation. Submission turned in after the last day of finals will not be accepted and therefore the student will not graduate on time.

**Audiences:**
- Management or supervisor/faculty internship advisor with whom a student has worked in the internship
- SPS program faculty advisor

**Purpose:**
To communicate project background, problem definition, steps in investigation, and solutions with an emphasis on technology and fit with company’s or organization’s product or technical goals
To relate the technical work to the overall business objectives of the project/company

**Content:**
This report should demonstrate the student’s scientific/technical knowledge that has been applied in the project, including any calculations or analysis required. Must include a specific section describing the business aspect to which the technical work applies.

**Length:**
Between 10 and 15 double-spaced pages, not including figures, graphs, tables, references, and any appendices.

**Sample Report Format:**

**Summary (~1 page)**
In the same order as the report, the summary should discuss the overview of the company, how the intern’s work relates to goals of company, and major accomplishments in projects. Should stand alone.

Example of summary contents:
- Where you did your internship and description of the organization and how you fit into it,
- What was the goal for your internship,
- What specific project did you work on and how it fit with the master’s program,
- What you achieved during your internship (product created, work completed, etc.), and
- What future steps on your project will be done later either by someone else in the organization or by another researcher or organization

**Project Background, Context, and Need for Project (~2-3 pages)**
- Description of organizational context including company background, company products and factors leading to project
- Company goals in product development or technical problems in company products/processes in need of solutions
- Steps in project definition
• Resulting technical goals

**Technical solution to the defined problem and goals (~4-5 pages, not including figures/tables)**
- Demonstration of student’s technical expertise through data analysis and discussion
- Geoscience and/or geophysical skill application, with data display, graphs and tables, with captions

**Business Section (~ 3-4 pages)**
- The relationship of the project to the companies overall business strategy and goals
- The merits of the project in light of the technical and/or strategic goals of the company—*i.e.*, costs and benefits
- How the project might benefit the company if recommendations or solutions were executed
- Recommended steps in executing the recommendations
- Resources needed for executing the recommendations

**EXCEPTIONS FOR NON-TYPICAL SPS INTERNSHIP PROJECTS**

A typical Space Studies Final Report is expected to have both technical and business aspects. However, if a student has no opportunity within the approved internship to conduct technical work or business-related work, he/she should seek permission from his/her faculty advisor to write a report emphasizing the predominant aspect of the non-typical project. (This exception might apply to a student conducting academic research for a faculty member, working in the business department of a company, etc.)

*The non-typical report should emphasize the predominant aspect of the internship, *i.e.* business or technical, and be written in-depth with appropriate sections as outlined below:*

**Business-Only SPS Project Report**

**Executive Summary (~1 page)**
In the same order as the report, the summary should discuss the overview of the company, how the intern’s work relates to goals of company, and major accomplishments in projects. Should stand alone.

**Introduction (~2-3 pages)**
Sets stage by introducing project background including context within the company, what led to the project and/or problem to be solved, statement of the project, steps in investigation, solution (introduces product/process), benefits and or business reasons for project.

**Body (~4-6 pages)**
Necessary discussion of recommended solution (*i.e.*, brief explanation of product or process technology and rationale for technology with focus on business and financial aspects). This section should explain the basis for the project and issues involved in carrying out the project—these may help to form the justification for the work within the context of the company’s goals. This section might include opportunity costs; risk analysis (health, environment, legal); a summary of regulations surrounding product or a technical model on which product/process is based; a
definition of target market and market potential; explanation of state-of-the-art of technology (with limited detail and with vocabulary aimed at a non-technical audience); comparison/contrast of this solution with that of competitors; competitive advantages (such as patents or other barriers to entry into the market); financial requirements for execution (may include cost/benefit analysis); alternative methods of executing (with cost/benefit analysis); steps in execution; and explanation of results or work done.

**Brief Technical Section (~1 page)**
Include the following and any additional matters of relevance:
- The relationship and merits of the project to the company’s overall technical objectives and goals
- How the business solutions/recommendations impact the technical focus of the company or project

**Conclusion (~1 page)**
Recap of recommended solution(s) (i.e., products and processes) and the business rationale. May include ‘next steps.’

**Appendices (optional)**
Add any appendices illustrating results or related information necessary for acting upon the recommendation or understanding the report’s conclusion.

**Technical/Academic-Only SPS Project Report:**

**Abstract (~1 page, double-spaced)**
A concise summary of the report, including project context, technical goals, materials/methods/approaches, results, implications and significance of outcomes, and real or potential applications. Should stand alone, without references to published literature or figures/tables.

**Project Background (~2-3 pages)**
Context for project, including background of the problem or investigation and factors leading to project. Should include appropriately referenced literature review. Include the researcher’s goals for project development or solution to technical problems in field.

**Body/Technical solution to the defined problem and goals (~4-6 pages)**
- Discussion of methods and approach to problem
- Demonstration of student’s technical expertise through calculations, data analysis, and discussion
- Scientific or engineering skill application, with data display, graphs and tables, with captions

**Conclusion (~1 page)**
- Discussion of how project supports applications of knowledge or development of better systems/techniques to real-world problems (i.e., to problems outside of academia, if project was in academic setting). May include ‘next steps.’
Subsurface Geoscience Internship Report

To complete your SG PSM degree, one comprehensive report that includes both business and technical aspects of your internship is required (exceptions for non-typical projects that lack a business or technical aspect are described on the following page).

Prior to submitting the final report, all students are required to have the product reviewed by their internship supervisor and the Center for Academic and Professional Communication or the PSM program communication faculty for review and feedback. Due dates for fall semester: October 1st and for spring semester: March 1st. In addition, students are also required to have the presentation reviewed and practiced with either communication
program no later than a week before their presentation date. The final report is due to be submitted to the advising faculty (with copy to PSM office) for grading after the students have given their oral presentation.

Late submissions will incur penalties and could impact graduation. Submission turned in after the last day of the final exam period will not be accepted, and therefore the student will not graduate on time.

**Audiences:** Management or supervisor/faculty internship advisor with whom a student has worked in the internship; SG program faculty advisor

**Purpose:** To communicate project background, problem definition, steps in investigation, and solutions with an emphasis on technology and fit with company’s or organization’s product or technical goals; To relate the technical work to the overall business objectives of the project/company

**Content:** This report should demonstrate the student’s scientific/technical knowledge that has been applied in the project, including any calculations or analysis required. Must include a specific section describing the business aspect to which the technical work applies.

**Length:** No longer than 15 double-spaced pages, 12-point font, not including figures, graphs, tables, references, and any appendices.

**Sample Report Format:**

**Summary (~1 page)**
In the same order as the report, the summary should discuss the overview of the company, how the intern’s work relates to goals of company, and major accomplishments in projects. Should stand alone.

Example of summary contents:
- Where you did your internship and description of the organization and how you fit into it,
- What was the goal for your internship,
- What specific project did you work on and how it fit with the master’s program,
- What you achieved during your internship (product created, work completed, etc.), and
- What future steps on your project will be done later either by someone else in the organization or by another researcher or organization.

**Project Background, Context, and Need for Project (~2-3 pages)**
- Description of organizational context including company background, company products and factors leading to project
- Company goals in product development or technical problems in company products/processes in need of solutions
- Steps in project definition
- Resulting technical goals

**Technical solution to the defined problem and goals (~4-5 pages, not including figures/tables)**
- Demonstration of student’s technical expertise through data analysis and discussion
• Geoscience and/or geophysical skill application, with data display, graphs and tables, with captions

**Business Section (~ 3-4 pages)**
- The relationship of the project to the company’s overall business strategy and goals
- The merits of the project in light of the technical and/or strategic goals of the company—*i.e.*, costs and benefits
- How the project might benefit the company if recommendations or solutions were executed
- Recommended steps in executing the recommendations
- Resources needed for executing the recommendations

**EXCEPTIONS FOR NON-TYPICAL SG INTERNSHIP PROJECTS**

A typical Subsurface Geoscience Final Report is expected to have both technical and business aspects. However, if a student has no opportunity within the approved internship to conduct technical work or business-related work, he/she should seek permission from his/her faculty advisor to write a report emphasizing the predominant aspect of the non-typical project. (This exception might apply to a student conducting academic research for a faculty member, working in the business department of a company, etc.)

The non-typical report should emphasize the predominant aspect of the internship, *i.e.* business or technical, and be written in-depth with appropriate sections as outlined below:

**Business-Only SG Project Report**

**Executive Summary (~1 page)**
In the same order as the report, the summary should discuss the overview of the company, how the intern’s work relates to goals of company, and major accomplishments in projects. Should stand alone.

**Introduction (~2-3 pages)**
Sets stage by introducing project background including context within the company, what led to the project and /or problem to be solved, statement of the project, steps in investigation, solution (introduces product/process), benefits and or business reasons for project.

**Body (~4-6 pages)**
Necessary discussion of recommended solution (*i.e.*, brief explanation of product or process technology and rationale for technology with focus on business and financial aspects). This section should explain the basis for the project and issues involved in carrying out the project—these may help to form the justification for the work within the context of the company’s goals. This section might include opportunity costs; risk analysis (health, environment, legal); a summary of regulations surrounding product or a technical model on which product/process is based; a definition of target market and market potential; explanation of state-of-the-art technology (with limited detail and with vocabulary aimed at a non-technical audience); comparison/contrast of this solution with that of competitors; competitive advantages (such as patents or other barriers to entry
into the market); financial requirements for execution (may include cost/benefit analysis); alternative methods of executing (with cost/benefit analysis); steps in execution; and explanation of results or work done.

**Brief Technical Section (~1 page)**
Include the following and any additional matters of relevance:

- The relationship and merits of the project to the company’s overall technical objectives and goals
- How the business solutions/recommendations impact the technical focus of the company or project

**Conclusion (~1 page)**
Recap of recommended solution(s) (i.e., products and processes) and the business rationale. May include ‘next steps.’

**Appendices (optional)**
Add any appendices illustrating results or related information necessary for acting upon the recommendation or understanding the report’s conclusion.

**Software/Programming-related SG Project Report**

**Executive Summary (~1 page)**
In the same order as the report, the summary should discuss the overview of the company, how the intern’s work relates to goals of company, and major accomplishments in projects. Should stand alone.

**Introduction (~2-3 pages)**
Sets stage by introducing project background including context within the company, explain the rationale for creation of software, what led to the project and/or problem to be solved, statement of the project, steps in investigation, solution (introduces product/process), benefits and or business reasons for project.

**Body (~4-6 pages)**
Necessary discussion of recommended solution (i.e., brief explanation of platform and rationale for technology with focus on who is the user, what is their need, how is it going to make the user’s workflow more efficient and robust.)

This section should explain the basis for the project and issues involved in carrying out the project—these may help to form the justification for the work within the context of the company’s goals. This section might include expected outputs, how software will be used, how developer interacts with clients, and financial expectations.

A definition of target market and market potential; explanation of state-of-the-art technology (with limited detail and with vocabulary aimed at a non-technical audience); comparison/contrast of this software solution with that of competitors; competitive advantages (such as patents or other
barriers to entry into the market); financial requirements for execution (may include cost/benefit analysis); and explanation of results or work done.

**Brief Technical Section (~1 page)**
Include the following and any additional matters of relevance:
- The relationship and merits of the project to the company’s overall technical objectives and goals
- How the software will impact the technical focus of the company or project
- What language was used, what are the requirements of using software, explanation of inputs and methodology used

**Conclusion (~1 page)**
Recap of software and solutions it will provide and the business rationale. May include ‘next steps.’

**Appendices (optional)**
Appendices may illustrate results or related information necessary for acting upon the recommendation or understanding the report’s conclusion.

Sample Report will be provided.

**Technical/Academic-Only SG Project Report:**

**Abstract (~1 page, double-spaced)**
A concise summary of the report, including project context, technical goals, materials/methods/approaches, results, implications and significance of outcomes, and real or potential applications. Should stand alone, without references to published literature or figures/tables.

**Project Background (~2-3 pages)**
Context for project, including background of the problem or investigation and factors leading to project. Should include appropriately referenced literature review. Include the researcher’s goals for project development or solution to technical problems in field.

**Body/Technical solution to the defined problem and goals (~4-6 pages)**
- Discussion of methods and approach to problem
- Demonstration of student’s technical expertise through calculations, data analysis, and discussion
- Geoscience and/or geophysical skill application, with data display, graphs and tables, with captions

**Conclusion (~1 page)**
- Discussion of how project supports applications of knowledge or development of better systems/techniques to real-world problems (i.e., to problems outside of academia, if project was in academic setting). May include ‘next steps.’

MANAGEMENT ELECTIVES

Through special arrangement with the Jesse H. Jones Graduate School of Management, Professional Master’s students have the opportunity to register for several elective courses offered through the MBA program, including (but not limited to):

- MGMT 610 FUNDAMENTALS OF THE ENERGY INDUSTRY
- MGMT 625 DESIGN THINKING
- MGMT 633 PHYSICIANS, SCIENTISTS, ENGINEERS AND MBA’S IN STARTUPS
- MGMT 676 SOCIAL ENTERPRISE
- MGMT 686 INTRODUCTION TO MARKETING RESEARCH
- MGMT 689 DECISION MODELS
- MGMT 717 PROJECT MANAGEMENT
- MGMT 721 BUSINESS LAW
- MGMT 747 REGULATORY ENVIRONMENT

NOTE: Courses vary. 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.

MBA students receive priority registration, so PSM students will only be permitted to register on a space available basis. Management courses are NOT open for web registration for non-MBA students.

SPECIAL REGISTRATION PROCESS

PSM students must get approval from the course faculty either in person or via email. Once the student has received approval, they should contact MBA Director of Student Records & Associate Registrar, Maria Sanchez Johnson, who will verify the course offering and class meeting times. The student must send Maria (via email at maria.johnson@rice.edu) a completed graduate special registration form with either the faculty’s signature OR with an attachment of the approval email.

Maria Sanchez Johnson
(713) 348-5246
maria.johnson@rice.edu

Ms. Johnson will process the registration.

It is very important to ATTEND THE FIRST CLASS of a management course, whether you are registered or not. Some professors are very strict and will not allow a student to enroll if he/she has not attended the first class.
OTHER REGULATIONS

Failure to follow the deadlines listed in the “Rice PSM Internship Requirements” will result in the student being put on probation, and a letter stating this circumstance will be placed in the student’s file. If the required documentation is not submitted within two weeks, the PSM Office, after consultation with the faculty, can terminate the student from the program.

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 all five track programs forms the Oversight Committee of the PSM 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

The Rice Honor Code is taken very seriously, and all accusations of plagiarism go before the Rice Honor Council, made up of representatives from the student body and the faculty.
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: www.students.rice.edu/students/Conduct.asp

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/academic-policies-procedures/regulations-procedures-all-degrees/

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 doctors 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.