



# Professional Science Master's Wiess School of Natural Sciences

## Graduate Degree Requirements and Procedures

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**[www.profms.rice.edu](http://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.

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## 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.

## **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 Weiss 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

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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 <b>OR</b>	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:

BIOS 520	MOLECULAR BASIS OF DISEASES
BIOS 523	CONSERVATION BIOLOGY
BIOS 524	MICROBIOLOGY & BIOTECHNOLOGY
BIOS 525	PLANT MOLECULAR GENETICS AND DEVELOPMENT
BIOS 534	EVOLUTION
BIOS 543	DEVELOPMENTAL NEUROBIOLOGY
BIOS 547	EXPERIMENTAL BIOLOGY AND THE FUTURE OF MEDICINE
BIOS 549	ADVANCED CELL AND MOLECULAR NEUROSCIENCE
BIOS 550	VIRUSES AND INFECTIOUS DISEASES
BIOS 560	CANCER BIOLOGY
BIOS 570	COMPUTATION WITH BIOLOGICAL DATA
BIOS 572	IMMUNOLOGY
BIOS 585	FUNDAMENTALS OF CELLULAR AND MOLECULAR NEUROSCIENCE

**Required Cohort Courses (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

**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)**

BIOE 552	INTRO COMPUTATIONAL SYSTEMS BIOLOGY
BIOS 538	ANALYSIS AND VISUALIZATION OF BIOLOGICAL DATA
DSCI 535	APPLIED MACHINE LEARNING AND DATA SCIENCE PROJECTS
EEPS 586	DATA SCIENCE METHODS AND DATA MANAGEMENT
STAT 553	BIOSTATISTICS
STAT 605	R FOR DATA SCIENCE

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

MGMT 631	HEALTH INSURANCE IN THE U.S.: THE ESSENTIALS
MGMT 678	BUSINESS OF HEALTHCARE
MGMT 690	HEALTHCARE STRATEGY
MGMT 751	ECONOMICS OF HEALTH CARE SECTORS
MGMT 793	CREATING THE DATA DRIVEN BUSINESS
PH 3910*	INTRODUCTION TO HEALTH ECONOMIC

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

ANTH 581	MEDICAL ANTHROPOLOGY
ANTH 643	ANTHROPOLOGY OF RACE, ETHNICITY AND HEALTH

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.*

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# **ENVIRONMENTAL ANALYSIS DEGREE**

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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):**

CEVE 501 <b>OR</b>	CHEMISTRY FOR ENVIRONMENTAL ENGINEERING & SCIENCE
CEVE 510	PRINCIPLES OF ENVIRONMENTAL ENGINEERING
BIOS 571	ECOSYSTEM MANAGEMENT - Overview
STAT 685	ENVIRONMENTAL STATISTICS AND DECISION MAKING

## **Required Cohort Courses (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

## **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**

CEVE 501	CHEMISTRY FOR ENVIRONMENTAL ENGINEERING AND SCIENCE
CEVE 502	SUSTAINABLE DESIGN
CEVE 507	ENERGY AND THE ENVIRONMENT
CEVE 508	INTRODUCTION TO AIR POLLUTION CONTROL
CEVE 509	HYDROLOGY AND WATER RESOURCES ENGINEERING
CEVE 511	ATMOSPHERIC PROCESSES
CEVE 518	ENVIRONMENTAL HYDROGEOLOGY
CEVE 520	ENVIRONMENTAL REMEDIATION RESTORATION
CEVE 523	APPLIED SUSTAINABLE PLANNING AND DESIGN
CEVE 526	SMART MATERIALS FOR THE ENVIRONMENT
CEVE 534	FATE AND TRANSPORT OF CONTAMINANTS IN THE ENVIRONMENT
CEVE 535	PHYSICAL CHEMICAL PROCESSES FOR WATER QUALITY CONTROL
CEVE 536	ENVIRONMENTAL BIOTECHNOLOGY AND BIOREMEDIATION
CEVE 544	ENVIRONMENTAL MICROBIOLOGY AND MICROBIAL ECOLOGY
CEVE 550	ENVIRONMENTAL ORGANIC CHEMISTRY

BIOS 523	CONSERVATION BIOLOGY
BIOS 563	TOPICS IN ECOLOGY
BIOS 568	TOPICS IN ECOLOGY (SPRING)
BIOS 569	CORE COURSE IN ECOLOGY AND EVOLUTIONARY BIOLOGY
BIOS 573	CORAL REEF ECOSYSTEMS
BIOS 580	SUSTAINABLE DEVELOPMENT
BIOS 595	TOPICS IN ENVIRONMENTAL SCIENCE
DSCI 535	APPLIED MACHINE LEARNING AND DATA SCIENCE PROJECTS
EEPS 592	EARTH'S RESOURCES IN A CHANGING WORLD
EEPS 632	QUANTITATIVE HYDROGEOLOGY
EEPS 635	REMOTE SENSING
EEPS 645	EARTH AND PLANETARY INTERIORS
EEPS 695	GRAPHIC AND VISUAL DESIGN FOR SCIENTISTS
MGMT 658	APPLIED RISK MANAGEMENT
MGMT 758	ENVIRONMENTAL, SOCIAL AND GOVERNANCE ISSUES IN STRATEGY

### **Management and Policy**

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

### **Quantitative Decision-Making**

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

STAT 606  
STAT 615

SAS STATISTICAL PROGRAMMING  
REGRESSION AND LINEAR MODEL

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**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):**

EEPS 548	3D SEISMIC REFLECTION DATA INTERPRETATION
EEPS 579	HYDROCARBON SYSTEMS ANALYSIS (4 CREDIT HOURS)
EEPS 583	DATA MANAGEMENT AND DATA GOVERNANCE
EEPS 659	WELL LOGGING AND PETROPHYSICS

## **Required Cohort Courses (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

## **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 MANAGMENT FOCUS AREA:**

### **Required Courses (9 credit hours)**

EEPS 584	DATA SCIENCE ENVIRONMENTAL AND GEOSCIENCES
EEPS 585	COMPUTATIONAL AND DATA SCIENCE IN THE ENERGY INDUSTRY
EEPS 586	DATA SCIENCE METHODS AND DATA MANAGEMENT

### **Electives (12 credit hours)**

*Students will choose 12 credit hours from the following electives:*

CEVE 528/ENGI 528	ENGINEERING ECONOMICS
CHBE 548	ENERGY SYSTEMS AND SUSTAINABLE DEVELOPMENT
COMP 543	GRADUATE TOOLS AND MODELS - DATA SCIENCE
COMP 556/ELEC 556	INTRODUCTION TO COMPUTER NETWORKS
DSCI 535	MACHINE LEARNING AND DATA SCIENCE PROJECTS

ECON 601	ENERGY ECONOMICS I
EEPS 634	CLIMATE OF THE COMMON ERA
EEPS 636	GIS FOR SCIENTISTS AND ENGINEERS
GLBL 543	ENERGY POLICY
MGMT 610	FUNDAMENTALS OF THE ENERGY INDUSTRY
MGMT 616	ENERGY MARKET ORGANIZATION
MGMT 661	INTERNATIONAL BUSINESS LAW
MGMT 670	OPERATIONS STRATEGY
MGMT 676	SOCIAL ENTERPRISE
NSCI 515	FOUNDATIONS OF PROJECT AND PROGRAM MANAGEMENT
STAT 518	PROBABILITY

## **GEOLOGY FOCUS AREA:**

### **Required Courses (6 credit hours)**

EEPS 630 <b><u>OR</u></b>	SEQUENCE STRATIGRAPHY OR
EEPS 530	SILICICLASTIC DEPOSITIONAL SYSTEMS
EEPS 654 <b><u>OR</u></b>	2D SEISMIC STRUCTURE AND STRAT
EEPS 661	STRUCTURE AND EVOLUTION OF TECTONIC SYSTEMS

### **Electives (12 credit hours)**

*Students will choose 12 credit hours from the following electives:*

CHBE 548	ENERGY SYSTEMS AND SUSTAINABLE DEVELOPMENT
EEPS 525	APPLIED SEDIMENTOLOGY I
EEPS 530	SILICICLASTIC DEPOSITIONAL SYSTEMS
EEPS 545	THEORETICAL GLOBAL SEISMOLOGY I
EEPS 578	HYDROCARBON EXPLORATION
EEPS 579	HYDROCARBON SYSTEMS ANALYSIS
EEPS 580	SEMINAR: QUANTITATIVE PETROLEUM SYSTEMS ANALYSIS 2
EEPS 592	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
EEPS 654	2D SEISMIC STRUCTURE AND STRAT
EEPS 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.

## **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.*

**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.**





# SPACE STUDIES DEGREE

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## 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 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	ATOMSPHERIC 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**

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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**

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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**

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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: Pages 69 to 77 of Leadership Communication by Deborah Barrett, ISBN 0-07-291849-7. One copy is available for reference in the PSM office.

Alternatively, consult Chapter 20, "Preparing Reports" (beginning on page 719) in Technical Communication, 6th edition, by Rebecca E. Burnett, ISBN 1-4130-0189-0, especially pp. 742-743 on progress reports.

**Detailed instructions for Final Reports vary by degree program.** *Students should read the instructions for their particular degree program in the pages that follow.*

# Applied Chemical Sciences Internship Report

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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 1<sup>st</sup> and for spring semester: March 1<sup>st</sup>. 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)**

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.'

*References:* Pages 329 – 333 and Chapter 7 from *Technical Communications in the Global Community* by Deborah C. Andrews, 2<sup>nd</sup> edition, ISBN 0-13-028152-2. One copy is available for reference in the PSM office.

*How to Write and Publish a Scientific Paper* by Robert Day and Barbara Gastel, Sixth Edition, ISBN 0-313-33027-9. Several copies are available in the PSM office.

## **Bioscience and Health Policy Internship Report**

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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 1<sup>st</sup> and 3<sup>rd</sup> 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.

### **2. Report 2: The Technical Report**

- 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 challenged 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.

## **Environmental Analysis Internship Report**

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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 1<sup>st</sup>** and for spring semester: **March 1<sup>st</sup>**), 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.'

*References:* Pages 329 – 333 and Chapter 7 from *Technical Communications in the Global Community* by Deborah C. Andrews, 2<sup>nd</sup> edition, ISBN 0-13-028152-2. One copy is available for reference in the PSM office.

*How to Write and Publish a Scientific Paper* by Robert Day and Barbara Gastel, Sixth Edition, ISBN 0-313-33027-9. Several copies are available in the PSM office.

## Space Studies Internship Report

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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 1<sup>st</sup> and for spring semester: March 1<sup>st</sup>. 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.'



*Reference:* Pages 329 – 333 and Chapter 7 from *Technical Communications in the Global Community* by Deborah C. Andrews, 2<sup>nd</sup> edition, ISBN 0-13-028152-2. One copy is available for reference in the PSM office.

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## **Subsurface Geoscience Internship Report**

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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 1<sup>st</sup> and for spring semester: March 1<sup>st</sup>. 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.'

*References:* Pages 329 – 333 and Chapter 7 from *Technical Communications in the Global Community* by Deborah C. Andrews, 2<sup>nd</sup> edition, ISBN 0-13-028152-2. One copy is available for reference in the PSM office.

*How to Write and Publish a Scientific Paper* by Robert Day and Barbara Gastel, Sixth Edition, ISBN 0-313-33027-9. Several copies are available in the PSM office.

# MANAGEMENT ELECTIVES

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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](mailto: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](mailto: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**

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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](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](http://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](#).