

Professional Science Management and Leadership

Program Description

The master of arts (M.A.) in professional science management and leadership is designed for professional scientists and engineers who are advancing in their careers in management and leadership roles. The program aims to provide these professionals with competencies in communication, management, leadership, regulatory affairs, intellectual property, finance, ethics, and law. The program will provide a mentoring system, networking experiences, and international opportunities. The program requires 36 credits with a core of 30 credits and an additional 6 elective credits.

Learning Outcomes

Upon completion of the program, students should:

- Be able to write and present information clearly and effectively for a variety of audiences.
- Be able to collaborate and work on a team as well as work across departments.
- Demonstrate leadership skills.
- Recognize the importance of diversity.
- Be able to resolve conflicts.
- Be able to direct employee response to achieve common goals in a changing business environment.
- Be proficient in the budgeting process, both within the company and when appropriate with the federal government.
- Understand the process of product development, the role of marketing, and how patents are involved in company market ventures.
- Understand legal issues and their relation to research, development and products.
- Be able to apply ethical standards to all operations within and outside the company.

Program Curriculum

The 36 credit hours required for the M.A. degree must include the following courses for a major in Professional Science Management and Leadership.

PSML 5000 Introduction to Professional Science Management and Leadership*
 PSML 5050 Communication for Professional Science Management and Leadership*
 MNGT 5590 Organizational Behavior*
 PSML 5590 Ethics and Social Responsibility in Science Management and Leadership*
 LEGL 5900 Foundations in Intellectual Property Law
 PSML 5700 Marketing and Comparative Analysis for Science Management and Leadership
 BUSN 5200 Basic Finance for Managers
 PSML 5800 Project Management
 PSML 5850 Regulatory and Qualitative Affairs for Science Management and Leadership
 PSML 6000 Practical Application in Science Management and Leadership

The elective requirements can be satisfied by taking two courses from the following:

BUSN 5630 Business Law
 INTB 5000 International Business
 PROC 5840 Negotiations
 LEGL 5740 Ownership, Licensing, and Transfer of Intellectual Property
 HRMG 5690 Workforce Retention and Transitions: Theory and Practice

**Core courses, must be completed before other courses in the program.*

Course Descriptions

PSML 5000 Introduction to Professional Science Management and Leadership* (3)

This course gives an overview of the Science Management Program and helps students understand a variety of business models and their demands. The course also addresses strategies for competitive gain, effective communication, team work, financial management plans, marketing, intellectual property, work with regulatory bodies, ethics, and human resource issues.

PSML 5050 Communication for Professional Science Management and Leadership* (3)

This course teaches effective ways to communicate both in writing and verbally with colleagues across disciplines, with business and corporate supervisors, and with the general public. Topics also include crisis management and dealing with difficult people. Preparing memos, slide show presentations, reports, and briefing papers will be practiced. Prerequisite: PSML 5000

MNGT 5590 Organizational Behavior* (3)

This course introduces students to many of the basic principles of human behavior that effective managers use when managing individuals and groups in organizations. These include theories relating to individual differences in abilities and attitudes, attributions, motivation, group dynamics, power and politics, leadership, conflict resolution, organizational culture, and organizational structure and design. Prerequisite: PSML 5050

PSML 5590 Ethics and Social Responsibility in Science Management and Leadership* (3)

This course examines the moral and social context of professional managers and leaders in science organizations. Topics include: moral, social and legal issues in contemporary business management; ethical theories as frameworks for managerial decisions; corporate social responsibility; dilemmas of conscience for science managers; ethical issues in the workplace; morality and leadership; codes of conduct and professional standards. Analysis and discussion of case studies comprise a significant portion of the class. Prerequisite: MNGT 5590

LEGL 5900 Foundations in Intellectual Property Law (3)

This course is a survey of the four primary areas of intellectual property--patents, trademarks, copyrights, and trade secrets. This course will compare and contrast the protections afforded by each of these primary areas of intellectual property law, and will clarify the scope and limits of patent protection for new inventions and discoveries. Prerequisite: LEGL 5000.

Professional Science Management and Leadership

PSML 5700 Marketing and Comparative Analysis for Science Management and Leadership (3)

This course focuses on marketing strategies, product management (including pricing and inventory control), SWOT analysis, competitive intelligence, branding, and methods of market research. Students will also learn how to be effective participants of a focus group. (3 credits) Prerequisite: PSML 5590

BUSN 5200 Basic Finance for Managers (3)

Managers and human resources management professionals must be able to understand financial information contained in financial statements and reports. Line managers must be able to understand financial information contained in financial statements and reports in order to evaluate their unit's financial performance, to communicate clearly with other managers, and to apply financial information when making decisions. Human resources management professionals must understand financial statements and principles if they are to effectively assist line managers and be strategic partners with other business functions. This course will focus on the interpretation and use of basic financial information by non-financial managers, not on the production of financial statements and reports. (FINC 5000 cannot be substituted for BUSN 5200.)

PSML 5800 Project Management (3)

Students will learn to use current project planning tools to develop project plans that aid in bringing a project to completion on time and within budget. Special attention will be given to cost, scope and schedule. GANTT Theory will also be introduced. (3 credits) Prerequisite: BUSN 5200, PSML 5590

PSML 5850 Regulatory and Qualitative Affairs for Science Management and Leadership(3)

This course reconstructs guidelines related to International Standards Organization (ISO), Good Management Practices (GMP), Food and Drug Administration (FDA), OSHA, EPA, and Organization for Economic Co-operation and Development (OECD) and Quality Assurance and Quality Control (QA/QC). (3 credits) Prerequisite: PSML 5590

PSML 6000 Practical Application in Science Management and Leadership (3)

This course will have the senior student carry out a well defined project, such as creating marketing and business plans for a new company, annual fiscal year or 7 year plan, or other appropriate project. Aspects of science management and leadership from the curriculum will be included in the project. Each student will make a final presentation to a panel that includes mentors. (3 credits) Prerequisite: Completion of all other courses in the program.

BUSN 5630 Business Law (3)

This course provides a basic understanding of laws that relate to business with emphasis on the law of contracts, negotiable instruments, secured transactions, business organization and structure, relationships among firms, and property. Case studies are analyzed in order to give the student an understanding of how these various laws have evolved.

INTB 5000 International Business (3)

The student is introduced to the language and terminology of international business and major international political and economic policies that affect modern international businesses. Special attention is given to fundamental concepts of international finance, accounting, law, management, and marketing.

PROC 5840 Negotiations (3)

The course involves scope, strategies, and objectives related to negotiate acquisitions. The preparation, conduct, and documentation of the negotiation process are included.

LEGL 5740 Ownership, Licensing, and Transfer of Intellectual Property (3)

This is a practical skills course covering the basics of contract formation and drafting. This course will cover the preparation and interpretation of agreements affecting the ownership, licensing and transfer of intellectual property, including patents, trademarks, copyrights, and trade secrets. Prerequisite: LEGL 5000 and LEGL 5900.

HRMG 5690 Workforce Retention and Transitions:

Theory and Practice (3)

This elective course examines the concepts relevant to the development and maintenance of a loyal, satisfied, and productive workforce. This course will illustrate how human resources management practices affect workforce retention and transitions. After reviewing theories of employee motivation, organizational commitment, job satisfaction, and withdrawal cognition, students will examine common organizational strategies and practices for retaining valuable human resources. Students will learn methods for assessing the causes of employee turnover and transfers, how to maximize the retention of good employees, how to design fair and effective layoff or reduction in force policies, and how to design and implement promotion, succession planning, and transfer programs in organizations. This elective course builds upon and supplements the core human resources management courses. Students must complete HRMG 5000 before taking this course. It will be helpful to have completed HRMG 5800 as well.