Supporting Materials, Section C

Area of Study and Concentration Guidelines

These guidelines describe the college’s general expectations for the academic content of concentrations within each area of study. These area of study guidelines are also available on the college’s website: www.esc.edu/AOS.

INTRODUCTION TO THE AREA OF STUDY GUIDELINES

The area of study (AOS) guidelines help students plan their degree programs. There are other sources of help: advice from professionals in the field and from mentors; catalogs of other colleges; students’ own research into their areas of interest; and more extensive resource materials developed by some areas of study or online at www.esc.edu/AOS. The guidelines deserve special attention because they spell out what the academic world and many employers understand a particular concentration to mean. For example, a concentration titled business administration that does not include economics is misleading: the guidelines guarantee truth in packaging.

The guidelines have authority but they are not a fixed set of course requirements. They are open to interpretation; many of the studies can be undertaken in a wide variety of ways, and they encourage concentrations that may differ from traditional majors. The principle which governs degree program planning is individualization: Empire State College students design programs which, within very broad parameters, meet their own needs and interests. Many students’ needs and interests are best met by concentration in one of the conventional academic disciplines, and they follow the guidelines carefully; others use the guidelines as a point of departure in defining their distinctive approaches to their studies.

As you begin planning your degree, your mentor will explain the area of study guidelines to you and help you interpret them. When your program is submitted to the faculty academic review committee, they will use the guidelines as part of the basis for their review. When you write your degree rationale, you should address the college’s expectations for the academic content of concentrations within your area of study. Several areas of study have provided specific concentration guidelines, in addition to the broader, general guidelines. For example, in Business, Management and Economics guidelines, there is a specific title for business administration which lists topics to be included in a disciplinary degree with that designation.

If you wish to depart from the guidelines, a different concentration title or organizing framework might be chosen; this option provides flexibility in designing your degree. For example, if you choose to design a degree in business without including several of the topics listed in the concentration guideline, you might select another framework and develop a title that better describes your degree plan.

The college offers students the opportunity to select one of five organizing frameworks for designing concentrations within the areas of study. This allows flexibility in curriculum design and ensures that students’ academic plans serve their needs and, simultaneously, communicate to the outside world a coherent degree plan.

These organizing frameworks are:

- Disciplinary – a program of study guided by the existing framework of a discipline.
- Interdisciplinary – the simultaneous and inter-related study of two or more disciplines.
- Problem Oriented – a program of study organized around a problem.
- Professional/Vocational – a study which focuses on acquiring knowledge and skills needed for specific career performance and applications. It also entails inquiry into the conceptual foundations of the profession, the role of the professional in that career, and the relations between the profession and society at large.
- Thematic – a program of study focusing on a particular theme or set of ideas.

All Empire State College students develop their skills in reading, speaking and writing, so that they may communicate clearly, correctly and effectively. The college also expects students to acquire mathematical, technical, language or other skills that are essential to their particular programs of study, as well as to develop skills in analysis, synthesis and evaluation. In addition, students are required to meet the SUNY general education requirements (see pages 14 - 17).

A student who successfully completes a degree program at Empire State College is an independent, self-sufficient learner. We expect an educated person to have developed many different perspectives, e.g., on international, gender-related, multicultural, historical, literary, aesthetic and scientific questions. Therefore, the overall degree program and the concentration should have breadth, coherence and progression.

The Empire State College policy on individualized program design in this guide provides additional information which you should consider when planning your degree and writing your rationale.
THE ARTS

Study possibilities in The Arts include both the practice and the history and criticism of the visual arts (sculpture, painting, crafts, photography, design, graphics, etc.); the performing arts (dance, theater, music, etc.); and the film arts (film, video, photography, etc.). Any of the five organizing frameworks may be used to design concentrations: disciplinary, interdisciplinary, problem oriented, professional/vocational or thematic.

A degree program in The Arts should provide for the development of:

- understanding of the historical and cultural context of works of art;
- knowledge of relevant theoretical and philosophical issues;
- awareness of diverse cultural perspectives;
- awareness of current developments and critical perspectives;
- research skills;
- technical proficiency;
- capacity to formulate, express, and communicate concepts and images; and
- ability to formulate critical judgments.

Concentrations in The Arts begin with foundation studies which prepare the student for more advanced-level work. Advanced-level competence should be developed in those areas which are most relevant to the specific concentration design and to the specific organizing framework. A progression of studies for concentrations in practice, performance and creation should lead to: competence in methods and techniques; an understanding of current developments, theory and critical perspectives; and should result in resourcefulness and independence. A progression of studies for concentrations in history and criticism should lead to competence in understanding history, theory, critical perspectives and cultural contexts. In planning the concentration, consideration should be given both to depth and breadth.

Students who wish to continue their studies on the graduate level and/or become practicing artists should consult the guidelines for professional degrees, which have been developed by professional associations such as the College Art Association and American Theater Association.

Students preparing for graduate work also should investigate the entrance requirements of specific graduate schools.

The creative arts are traditionally included with those studies considered to be liberal arts. Studio arts would fall within this definition. Learning not considered liberal studies focuses on specialized knowledge and skills often related to specific professional/vocational needs and practices. Technical photography, art therapy techniques, advertising art and methods for art education might fall into this category.

BUSINESS, MANAGEMENT AND ECONOMICS

The registered area of Business, Management and Economics (BME) consists of studies both professional (such as accounting) and disciplinary (such as economics). Programs in this area allow students to pursue educational and occupational interests and provide a solid foundation to function in a changing world. They include studies leading to an understanding of organizations and of the interactions among consumer, government, not-for-profit and private sector interests. These guidelines should be read and understood in the context of the introduction to the area of study guidelines in this guide.

The responsibility to research current professional and disciplinary trends and program development lies with the student. The studies chosen should support student-identified goals. In addition, effective programs must meet college requirements and must show progression, depth and diversity of study.

Business, Management and Economics General Guidelines

The general guidelines apply to all concentrations within the Business, Management and Economics area of study. Several specific concentrations have additional guidelines. All students are expected to demonstrate knowledge in each of the following areas:

- **communication skills**
  Students are expected to demonstrate communication skills that enhance their ability to function in a professional or organizational environment.

- **information management**
  Students are expected to demonstrate a basic understanding of information technology and systems appropriate to their fields.

- **economics**
  Students are expected to demonstrate the ability to solve problems using economic principles and concepts.

- **ethical and social responsibility**
  Students are expected to demonstrate an understanding of and appreciation for ethical and social issues facing organizations and their environments.

- **quantitative skills**
  Students are expected to demonstrate an understanding of analytical tools appropriate to their fields.

- **understanding people in an organizational context**
  Students are expected to demonstrate an understanding of how individuals and groups function or behave in organizations.

- **understanding organizations within broader contexts**
  Programs should provide a solid foundation for graduates to function effectively in their professions, or organizations, in a complex and changing world. To
accomplish this students might include learning that addresses diversity, political, international, technological or environmental issues.

Students must be able to think critically and to analyze situations in a variety of different contexts. They need to be able to develop a cogent argument and to substantiate their ideas. A broad selection of studies in the liberal arts and sciences will enhance a student's ability to accomplish this.

Additional specific guidelines have been developed for concentrations in the following areas:

- accounting
- business administration
- economics
- finance
- human resources
- information systems
- international business
- labor relations
- management
- marketing
- public administration

Concentration in Accounting

Empire State College offers the opportunity to complete either a traditional concentration in accounting or an individualized concentration that is designed to meet the unique needs of Empire State College students. Since various career paths exist within the accounting profession, the career exploration and research phase of the educational planning process is particularly important.

A degree plan with an accounting concentration is expected to satisfy the general guidelines for the Business, Management and Economics area of study (BME-AOS). In addition, the following core courses define the accounting concentration:

Introductory Accounting I and II; or Principles of Accounting I and II; or Financial and Managerial Accounting
Intermediate Accounting I and II
Cost Accounting
Management/Accounting Information Systems
Corporate Finance
Advanced Accounting
Auditing
Legal Environment of Business or Business Law
Statistics

Information on Career Options in Accounting

There are various licensure and professional certification programs in the accounting field. In addition, there are many employment opportunities, and professional licenses and certifications that are available in the public, private and not-for-profit sectors which require specific coursework, course sequences and course levels. Accordingly, it is the students’ responsibility, in designing the degree plan, to check with their state board of accountancy, and professional associations, regarding the current requirements for any professional designations they are interested in pursuing.

Public Accounting Careers

Empire State College cannot guarantee admission to any professional examination including the Certified Public Accountancy examination, or satisfaction of the educational requirements for licensure. In order to meet the admissions requirements, students are advised that cross enrollment with another college may be required and credit by evaluation may not be accepted by their state. Students also are advised that educational requirements often change, and they should not rely on the experience of other Empire State College graduates.

In general, being an accountant does not require state licensing or professional certification unless the student is interested in pursuing work in public accountancy as a Certified Public Accountant (CPA). The CPA profession is defined as “holding one’s self out to the public in consideration of compensation … providing signature … indicated or implied that the practitioner has acted or is acting, in relation to financial accounting and related statement, or reporting as an independent accountant or auditor or as an individual having or purporting to have expert knowledge in accounting or auditing.” The license is required to practice as an external auditor and to provide an independent opinion on the fair presentation of the financial statements issued by a publicly-held corporation, and other not-for-profit and private companies for certain budgeting or banking matters.

Note: The board of education, licensing department of each state has its own educational and practical experience requirements which may change over time. Consequently, it is the student's responsibility to check with the state board of education about the current requirements for licensing as a CPA.

[Effective Aug. 1, 2009, candidates for the CPA exam in New York state must complete at least a bachelor’s degree or higher degree and 150 semester hours including, but not limited to at least 33 semester hours in accounting with courses in financial accounting theory and principles (including advanced financial accounting), managerial accounting, U.S. federal tax accounting, auditing and computer auditing; and 36 semester hours in general business electives including business statistics, commercial law, computer science, economics and finance. The curriculum also must include the study of business/accounting communications, ethics/professional responsibility and accounting research.]

Courses in auditing, federal taxation and advanced accounting must be taken either at the upper-division level (third or fourth year) of an undergraduate program or at the graduate level.
Per the NYS Education Department, Empire State College students who are planning to seek the CPA license are strongly advised to take auditing, federal taxation and advanced accounting at a college that has a registered program with the State Education Department.

To better prepare students for pursuing a public accountancy career, in addition to the accounting core studies, students should consider including the following studies in their degree program:

Federal Income Taxes I and II
Business Ethics
Business Communications

Management Accounting Careers

Students may choose to pursue a career in management accounting. Management accountants are strategic financial management professionals who integrate accounting expertise with advanced management skills to drive business performance inside organizations. Management accountants monitor, interpret and communicate operating results, evaluate performance, control operations and make decisions about the strategic direction of the organization.

To better prepare students for pursuing a career in management accounting, in addition to the accounting core studies, students should consider including the following studies in their degree program:

Principles of Marketing
Strategic Planning or Strategic Management
Business Ethics
International/Global Business

Internal Auditing Careers

Students may choose to pursue a career in internal auditing. Internal auditors evaluate risk exposures related to organizations governance, operations and information systems in terms of effectiveness and efficiency of business operations; reliability and integrity of financial and operational information; safeguarding of assets; and compliance with laws, regulations and contracts.

To better prepare students for pursuing a career in internal auditing, in addition to the accounting core studies, students should consider including the following studies in their degree program:

Internal Controls or Internal Auditing
Internet communication and Security

Forensic Accounting Careers

Forensic accounting is another growing career area in accounting. Forensic accountants work in the area of fraud examination, prevention, detection, deterrence and investigation.

To better prepare students for pursuing a career in forensic accounting, in addition to the accounting core studies, students should consider including the following studies in their degree program:

Internet communication and Security
Theories of Crime Causation or Behavioral Psychology and Society
Case Management
Investigation Techniques
Interviewing Techniques

Government or Not-for-Profit Accounting Careers

Another career opportunity in accounting is in government and not-for-profit financial management. Government and not-for-profit accountants and financial managers are interested in working on project management, planning and execution of several audits, programs planning and controlling to prevent or deter the misuse of public resources in the programs and operations of federal, state, city and local agencies. It is a stewardship relationship to account for public resources and improve efficiency and effectiveness in governmental and not-for-profit business operations. Finance managers are becoming more and more valued as key members of decision-making teams, assessing how agencies are performing; helping managers operate their programs more efficiently and transforming government processes through technology.

To better prepare students for pursuing a career in governmental and not-for-profit accounting, in addition to the accounting core studies, students should consider including the following studies in their degree program:

Accounting for Government and Not-for-Profit Organizations
Not-for-Profit Management
Public Finance and Budgeting
Business, Government and Society
Politics and Leadership in the Bureaucracy

Effective Aug. 1, 2009

Concentrations in Financial Management, Nonprofit and Governmental Accounting, Industry and Business Sectors, Banking and Financial Services and/or Other Specialized Situations

It is possible to develop unique programs which combine selected traditional accounting studies with studies geared to students’ individual career interests. Such studies might include: nonprofit and/or governmental finance or accounting; specialized studies geared to a particular business sector (such as construction, banking, automotive or financial services, etc.); specialized auditing (governmental, EDP, banking or internal); specialized studies in cost or management accounting; concentrations in financial planning which combine accounting studies with finance; or concentrations in taxation (i.e., personal, corporate, fiduciary, tax and estate planning or regulation). As the globalization of business continues to
evolve, studies with an international focus also may well be appropriate.

**Concentration in Business Administration**

A business administration concentration will be developed through application of theoretical concepts to practical business problem solving and decision making that the business professional encounters, applicable to the corporate and not-for-profit organization. A business administration concentration is generally considered as offering the broadest array of traditional academic and business disciplines including economics, accounting, marketing, management, business law, the legal environment of business, finance and quantitative methods such as statistics. Additionally, to meet the complexities of today’s evolving business environment, technical knowledge such as computer applications and management information systems is essential. Furthermore, this concentration also should provide the student with a sound understanding of the international, global and ethical issues confronting contemporary societies. Students should address and provide evidence of having incorporated the aforementioned guidelines in the degree program rationale.

Additionally, when students plan a bachelor’s degree program in business administration, they should demonstrate through transcript credits, evaluated learning or Empire State College studies that they have foundational studies in these business disciplines as well as advanced-level learning. Students can accomplish this by referring to the guidelines for the academic areas described here and to the list of suggested study titles presented at the end of this document.

A strong business administration degree program will closely follow these guidelines as well as the Business, Management and Economics general guidelines. The general guidelines specifically state that all students are required to demonstrate knowledge in each of the following areas:

- communication skills
- information management
- economics
- ethical and social responsibility
- quantitative skills
- understanding people in an organizational context
- understanding organizations within broader contexts

A business administration concentration will include learning from each of the following core areas and a capstone study such as Business Policy or Strategic Management.

**Economics:** Degree programs will include both microeconomics and macroeconomics or a combination thereof. Microeconomics can be conceived of as primarily examining decision making for a whole firm whereas macroeconomics can be conceived of as primarily examining the functioning of the broad environment within which individual firms operate.

**Accounting:** Students study accounting to understand the approach, logic, strengths and weaknesses of this discipline in order to make informed use of this important management tool. Degree programs will include Financial Accounting, Managerial Accounting, a combination thereof or Accounting for Decision Makers.

**Marketing:** Students study marketing to gain understanding of functional issues that occur every day in business such as finding customers for its products or services, developing or managing these products or services, identifying needs, and distributing products or services. A foundational study in marketing, often titled Principles of Marketing or Marketing Fundamentals, will focus on these functional problems.

**Finance:** Knowledge in finance will enable students to project and plan the flow of funds so that there are adequate resources available when needed and to make appropriate allocation of funds and investment decisions.

**Management:** Studies in management foundations, often titled Fundamentals of Management, Principles of Management and Introduction to Management, cover topics such as planning, organizing, leading and controlling. Students also are introduced to problem solving and analytical processes used in business environments. This includes establishing goals and objectives, as well as coordinating human, physical and financial resources needed to achieve them.

**Legal Environment:** The student should have a foundation in law such as provided in the Legal Environment of Business or Business Law. Because laws and regulations increasingly influence business decisions, students need to understand how environment influences organizational decisions.

**Quantitative Methods:** Students need to have practical and applied quantitative skills appropriate to their workplace and career pursuits. Statistics or other quantitative analysis studies will foster informed business judgments.

**Information Management Systems:** Students need to have an understanding of the use and management of information as an organizational resource, provided through a basic study in information systems and introduction to computer applications.

**Capstone Study:** A capstone study provides students with methodology, tools and problem-solving skills to integrate their business knowledge while solving problems affecting both the internal and external environments. Such study could be in Business Policy, Strategic Management or an individualized project.

**Suggested Advanced Level Studies:** The business administration concentration also should include advanced level studies in a variety of areas such as domestic, international, global and ethical issues that confront contemporary societies. While not intended as a comprehensive listing, additional studies could include:
• Business Ethics
• Business Policy (suggested capstone)
• Comparative Economics
• Computer Applications in Decision Making
• Consumer Behavior
• Corporate Finance
• Corporate Social Responsibility
• Cost Accounting
• Diversity in the Workplace
• E-Commerce Marketing
• Entrepreneurship
• Human Resource Management
• International Business and Management
• International Economics
• International Marketing
• Investment
• Labor and Management Relations
• Leadership
• Managerial Decision Making
• Marketing Research
• Management Information Science (MIS)
• Operations Management
• Operations Research
• Organizational Behavior
• Small Business Management
• Strategic Management (suggested capstone)

The degree program rationale should discuss the appropriateness of all studies in relation to future career plans.

*Effective July 1, 2010*

**Concentration in Economics**

Economics is a discipline within the social science field. The core of economics deals with people's attempts to organize their environment to satisfy their material needs by the production, distribution, and consumption of goods and services. More broadly, it overlaps with other social sciences such as history, sociology, political science, geography and psychology.

Degree programs of students reflect both personal intellectual interests and career goals. A degree in economics provides a foundation for employment in a wide range of fields including teaching, research, policy analysis, government service, banking, insurance and general business. All require the ability to manipulate and analyze data as well as a solid theoretical base. A blend of theoretical and applied studies is advisable.

As part of the BME area of study at Empire State College, a concentration in economics allows the student the breadth to select studies from a wide constellation of applied and theoretical areas and to plan a program around individual interests. However, a concentration should possess defensible progression and integration. Ideally, the concentration would incorporate broad content areas – i.e., public economics rather than separate studies such as public revenues or public expenditures.

While maintaining the individuality of a degree program, we must recognize certain professional and community expectations within a discipline. At the minimum, certain foundational studies are essential before a student can be an effective learner at more advanced levels; and in that spirit the following studies are suggested for consideration in a concentration in economics.

**Foundation**

A solid foundation introduces the beginning student to the terminology, concepts and analytical tools utilized by economists. It is strongly recommended that the student survey the major principles, institutions and problems in contemporary life by completing some study of both macroeconomics (the study of the aggregate economy) and microeconomics (the study of individual components of the economy) at the introductory level. This recommendation is based on: (a) the range of new concepts to be learned that will carry over to more advanced study; and (b) the traditional division between micro and macro, whereby not all critical concepts of the discipline will be covered in either alone. Also, at this level of study, the student should have an understanding of graphs, tables, algebraic equations and cause-effect relationships as found in college algebra and differential calculus in order to be able to fully grasp marginal analysis of functional relationships. Further work in mathematics is essential for students intending to pursue graduate study.

A knowledge of statistics is important for most economic studies which have a quantitative orientation because applications of descriptive statistics, graphical methods, probability, correlation, regression, etc., are made in them. Beyond that, any student who hopes to understand economic literature from journals and other professional sources will benefit from studies in statistics.

**Advanced**

After absorbing all the vocabulary and concepts at the introductory level, the student may not be able to translate them into the examination of complex economic phenomena unless he or she studies them at a higher level of abstraction. For instance, a student who is interested in pursuing a concentration in health economics will need more than an introductory exposure to the determination of prices, output and productivity before applying them to the economics of health. These elements are more fully examined in intermediate microeconomics or intermediate macroeconomics. In most cases, knowledge from both intermediate areas is appropriate before further study can be effectively pursued.
In any discipline, the student is expected to gain an understanding of the development of its thinking. Economics is a dynamic and evolutionary study, whose paradigm shifts through preclassical, classical, marginalistic or Keynesian contexts, present the student with excellent opportunities to examine the various schools of thought. It is the study that gives the discipline its philosophical and theoretical base, and it enables the student to better understand how the economic system operates.

In sum, all concentrations in economics should reflect a progression of studies from the introductory to the advanced level which respond to the student’s own personal, academic and professional goals. They can cover a range of possibilities including (a) a purely theoretical orientation, especially for those interested in graduate study; (b) an applied orientation for those whose interest is mainly in working in industry; and (c) a policy orientation for those who wish to pursue careers with the government.

Concentration in Finance

Finance is the study of the direct and indirect transfer of funds from those who save to those who invest. It includes both the financial instruments which are bought and sold and the markets in which they are traded.

The study of finance builds upon a foundation of economic concepts. It applies those concepts to information that comes from a solid foundation in accounting theory, and it uses concepts from statistics to deal with the uncertainty inherent in forecasting the future. Much of the problem solving in finance uses algebra. Electronic spreadsheets are used in “real world” simulations. Advanced quantitative skills are desirable.

The concentration typically will include one or more studies which focus on the firm as the generator of financial instruments and on the valuation of those instruments. It also will include one or more studies which focus on the investor as the purchaser of those and other financial instruments. One or more studies of financial markets – both domestic and international – will be included. These studies form the core of a concentration in finance.

One or more studies in risk management might be useful to the student who plans to make a career in finance. There are two major directions such a career might take – one within a corporate financial structure and one as a personal financial consultant/advisor. For students wishing to study finance as a path to corporate management, many of the studies in management or business administration concentrations are also appropriate. Other students might wish to focus more on the theory of finance and would find additional studies in economics, corporate finance, portfolio theory, securities analysis, international finance, money and banking, and research methods appropriate. Those interested in a career as a personal financial consultant or advisor might wish to include

Concentration in Human Resource Management

Background

The human resource management professional is an essential partner in developing and executing the strategy of the organization. Individuals working in the HR field are key players in ensuring the organization has the right people in the right places doing the right things at the right times. In effect, it is HR professional’s responsibility to ensure HR policies, procedures and practices are matched effectively with the organization’s strategies. This includes functions such as recruiting/staffing, training, planning and development, reward systems including direct and indirect monetary rewards, workplace safety and health, and employee/labor relations.

To perform these functions, an HR professional needs to interact with people across the organization and needs to have an understanding of these functions. The human resources professional is in what is considered a “trusted position;” those who serve in this field are held to higher standards of integrity, discretion and discernment.

Issues that currently face professionals in this field are numerous and complex. The legal, economic and political environments at the local, state, country and international levels impact how HR strategies can be achieved. In addition to understanding the broad framework of the relevant laws (e.g., for equal opportunity, income security, safety and health, labor-management relations), the HR professional also needs to understand the economic, social and political environments and their impact on HR activities within an organization. Of critical importance are issues such as globalization, rise of knowledge worker and technology. The HR function is frequently asked to implement policies and programs to enhance the organization’s ability to thrive in environments undergoing rapid change.

Progression in the Concentration

To prepare to study in the HR field, students should develop an understanding of the environment through study in fields such as psychology, sociology, political science, economics, law and quantitative analysis, including statistics. Students also should ensure they have the ability to communicate in multiple forms (oral, written, electronically) with individuals and groups, and are able to analyze complex information.

Students pursuing a human resource management (HRM) concentration should build a strong foundation of knowledge in the functional areas of business including accounting, finance, management, operations, marketing and information systems. This can be accomplished in a variety of ways. It also is important to have an understanding of the changing nature of work and the work force, including such issues as workplace diversity and globalization. Students also should understand the interactions among individuals, groups and organizations.
through a study such as Organizational Behavior or Managerial Psychology.

Students pursuing an HRM concentration should meet the general guidelines for Business, Management and Economics, and have a broad-based understanding of the HR function through study or experience.

**HRM Knowledge/Studies**

The HR function has four key responsibilities:
1. Staffing (recruitment and selection)
2. Compensation (direct and indirect)
3. Training and Development
4. Employee/Labor Relations

For students seeking a broad-based HR career, they should build competencies in the four areas above through a combination of experience, studies and/or internships. Students also could consider taking an integrative (capstone) study to integrate their knowledge of HR and organizations. In addition, students could consider including studies that help in developing knowledge and competencies in specialized areas of HR. A nonexclusive list of possible topics is below:

- Employment and/or Labor Law
- Diversity in the Workplace
- Dispute Resolution in the Workplace
- International HRM
- Human Resource Planning
- Human Resource Information Systems
- Change Management
- Performance Management
- Labor Economics
- Workplace Safety and Health

**Supporting Studies**

Other supporting studies could focus on the organization or industry in which the student plans to work. These could include nonprofit management, retail management, manufacturing technology, health care administration and other similar types of organizational studies.

**Related Concentrations**

In addition, students also could consider developing a degree plan in related concentrations such as training and development, gender/diversity/LGBT issues in the workplace, labor or industrial relations, or other areas of organizational studies.

*Effective July 1, 2009*

**Concentrations in Information Systems**

**Introduction**

What is “information systems?” Clearly, the subject of information systems involves “information” and “systems.” Information is data that has been given meaning through some process. Through its attribute of meaning, it therefore has added value. Systems are the ways in which we develop that information. This would involve the development and use of models as well as the development and use of processes that will help us implement those models.

For the student who wishes to develop a degree program in information systems, definition is the initial challenge and, as the definition develops, the degree program also will take shape.

There are, of course, many ways to approach information systems. Many professionals and educators have tried to identify different approaches by adding adjectives, which has led to terms such as “management information systems” (MIS) and “computer information systems” (CIS). The general understanding was that MIS would be more focused on the management aspects, while CIS focused on the technical aspects. However, as the area has developed, the differentiation between the managerial and the technical has certainly blurred. These guidelines have therefore adopted the more general title of information systems (IS).

At Empire State College, the variation among degrees in information systems occurs with the identification of the area of study. There are three primary areas of study where a degree in information systems can reside: Business, Management and Economics; Science, Mathematics and Technology; and Interdisciplinary Studies. In order to help the student identify the most appropriate area of study, separate guidelines are provided for each of these areas of study. However, a common core of knowledge has been identified that is appropriate for any of these areas of study.

Students can consider other possibilities than IS for their concentration titles. For example, in the Science, Mathematics and Technology (SMT) area, a student who comes to Empire State College with substantial experience and/or transcript credit in computer technology may want to build on that background to develop a degree program in information technology. A SMT student who wishes to have a more theoretical approach, including extensive study of mathematics and algorithms, may want to pursue a degree in computer science. In the Business, Management and Economics (BME) area, a student pursuing a degree in information systems management may consider taking studies such as accounting information systems, human resource information systems, and so on depending on his or her interests and needs.
Common Core of Knowledge for Information Systems

In any degree program, progression and integration are important. Progression is important because one needs to move from a foundation to a deeper level of understanding. Integration exists when links exist among the degree program studies.

The common core of knowledge for information systems addresses the aspects of progression and integration. To begin, the foundation is defined, which is important for any degree program. Then, the essential links are presented. From these essential links, the rest of the degree program will then differ, depending on student goals and interests.

Here are the core areas that the relevant areas of study faculty have agreed upon as essential for a degree in information systems:

- **Computer Fundamentals**: This area is composed of three sub-areas, all of which need to be addressed—applications, programming and introductory IS concepts. Applications include word processing, use of spreadsheets, database management and telecommunications. The knowledge of telecommunications should include a basic understanding of networks and the Internet. Programming is introductory programming and can be in any language. Introductory IS concepts provide an overview of the area, including basic hardware and software aspects, as well as common applications of IS, including, but not restricted to, the use of IS for decision-making support.

- **Business, Management and Economics Fundamentals**: Information systems exist within organizations. In many cases, the organization is involved in business transactions. Therefore, some basic understanding of business and management fundamentals is important. This could be chosen from one or more of the following areas: economics, behavior/management and/or finance/accounting.

- **Quantitative Reasoning**: All students should already have (or develop) skill and confidence with the interpretation of material containing quantitative information and mathematical symbols, and they should have (or develop) an ability to express ideas using mathematical symbols and language. That is, it is important to be able to articulate one's understanding of mathematics, not just be able to do calculations. The choice of mathematical subject matter for development of quantitative reasoning will depend on the student's background and interest. Subjects such as algebra, statistics, finite math or technical math are all good choices. In addition, students should greatly benefit from an understanding of basic statistical concepts.

- **Systems Analysis and Design (advanced level)**: Key to the understanding of information systems is an understanding of systems analysis and design. This includes an understanding of the systems lifecycle as well as systems and network models.

- **Information Technology (advanced level)**: Information technology concerns the hardware aspects of information systems. Many students come to Empire State College with background in information technology. This may include training in networks or the underlying technology of the World Wide Web. It also may include an advanced understanding of programming languages. In this area, currency is important and students without this should regain currency in their contract learning. Contract learning could include study of data communications and networking or advanced programming languages.

- **Information Systems (advanced level)**: In addition to systems analysis and design, which was already identified as a core subject, and an understanding of systems and information technology, a student should have an advanced level of understanding in databases, MIS or project management in information systems. Any advanced-level IS study should include some aspect of decision making.

- **Understanding of the Environment in Which One Works**: Information systems always exist in some context and there is wide variability in that context. Often the environment is a business organization, but this is not necessarily the case. Examples of studies that would give a student this perspective would be: technology and society, technology management, cross-cultural management, organizational behavior, computer ethics, human-computer interaction or e-commerce.

In this common core, the student has already investigated information technology and information systems at the advanced level. He or she also has studied systems analysis and design. The contents of the rest of the concentration will depend on the specific area of study. Three of the most common possibilities are discussed below.

An IS Degree Within the Area of Study of Business, Management and Economics

In addition to satisfying the general BME guidelines, students wishing to develop an IS degree within the BME registered area are advised to take Business, Management and Economics studies that include IS components or that complement the IS studies in the core area. The following are suggested topic areas: the list below is by no means exhaustive. These studies should be beyond the introductory level and address competencies, learning and knowledge areas such as the following:

- **Telecommunications Management** – A responsibility for the operations and performance of the communication network within the organization. This would include studies such as project management, computer operations and computer security.

- **Database Management and Administration** – A combination of data management and data administration roles and responsibilities, including studies such as relational databases, enterprise data modeling, client interface and management information systems.
• Accounting and Financial Management – This involves such responsibilities as dealing with investments in vertical information systems, procurement, operations management, and implementation of an information systems’ financial strategy within the organization. Cost accounting is an integral part of this area.

• Planning – This would include positioning of IS within other organizational functions to support business strategies and goals and would include studies such as business planning, strategic planning, strategic control systems and systems development.

An IS Degree Within the Area of Study of Science, Mathematics and Technology

The general SMT guidelines are met through the core studies for a degree in IS. One additional area that needs to be included in an information systems degree under SMT would be further study in mathematics. This should be beyond the introductory level and could include areas such as discrete math or advanced quantitative methods in business. The discrete mathematics would cover logic, the concept of complexity, methods of proof and graph theory. The advanced quantitative methods would include topics such as decision making under uncertainty and linear programming.

Beyond the core, students in SMT will most likely have an area they would like to focus on in their additional advanced-level studies. The following are some suggested areas (this list is by no means exhaustive):

Programming – One possible area to investigate further is programming. This does not mean the study of several specific languages. Rather, students are encouraged to consider integrative studies such as: object-oriented programming, theory of programming languages and artificial intelligence.

Networks – A student may be interested in the role of network administrator. For this student, studies such as data communications, voice systems, computer security and network administration would be of interest.

Web Design – The Web has become a very attractive environment. The goal would not be to learn specific packages, but principles that would have a longer life. Suggestions include Web programming, Web design and Web development.

Databases – Databases are at the center of any information system. Any degree program in information systems should include study of databases. Further study of databases would include areas such as data modeling, database management, relational databases, decision support systems, enterprise data modeling, artificial intelligence and expert systems.

Telecommunications – The area of telecommunications is broader than the study of networks. This area would look at the integrated nature of telecommunications, where voice, data and graphics are united.

In developing the concentration studies, it is important that the studies not focus on specific commercial packages, since these narrow approaches will not serve the student’s long-range goals. Specific titles may go out of date, or the manufacturer may change its name or go out of business. It also is important to strike the proper balance between study of general concepts and of specific software tools and packages. While students can and should gain much hands-on experience with software in their studies, at least equal emphasis must be placed on mastery of the concepts and principles. The concepts and principles are the key to successful life-long learning and to mastering the use of new software tools and techniques as they become available. A specific example of this principle would be developing a study Web Design, rather than a study titled, Microsoft Frontpage.

An IS Degree Within the Interdisciplinary Studies Area of Study

Separate guidelines are given for the Interdisciplinary Studies area of study and these are the best source for any student developing a degree within this AOS. However, it is assumed that a student with an Interdisciplinary Studies degree in IS would still have the common core identified earlier. For the additional studies in the information systems area, one would not expect to see a collection of unrelated technical and business studies in an Interdisciplinary Studies degree. Rather, several of the studies at the advanced level should be studies that integrate viewpoints and applications. An example may be a degree that looks at the technical and implementation aspects of e-commerce.

Concentration in International Business

The concentration in international business can build on a foundation of any of a number of different areas in business, management or economics, but must demonstrate an awareness of the extensive, complex, external environment in which internationally-oriented businesses will operate. Also crucial is an awareness of the different cultural, political and legal environments in international business and the resultant consequences of decisions made by managers operating in that context.

Empire State College offers the opportunity to complete a number of different concentrations in international business. The various options include designing a program that is just a variation of the traditional Bachelor of Science degree in business administration, to which is added a few studies dealing with problems of doing business internationally. Another variation would be similar to a traditional Bachelor of Science degree in economics, in which studies in international trade and currency concerns are included. Other options include a program strongly focused on world geography, a program stressing the preparation for an international marketing or banking career, or one with a very strong basis of foreign language knowledge.
Because international business concentrations offer many diverse career opportunities, the career exploration in the research phase of educational planning is particularly important. Many career opportunities exist in private industry, commerce, government and banking. In some careers, specialized studies are desirable for employment (for example, banking or government work). However, for the majority of private industry careers, specialized studies are not required. Instead, a basic program and then experience in the industry is helpful to career progression. Students should carefully consider their employment experiences and expectations in the design of their degree programs. These experiences can often be complemented or enhanced through individualized learning contracts which allow the student to pursue topics relevant to certain employment situations.

The guidelines that follow provide guidance to a basic program. It should be augmented with additional studies in areas personally relevant. The basic course of study outline for international business provided here is drawn from some long-standing and widely accepted programs at other institutions.

**Liberal Arts Studies That Should be Included in all International Business Concentrations**

For international business a student is recommended to include study in world history and U.S. history, political science (world governments and U.S. government), comparative literatures or world literature, art history, world philosophies and religions, foreign language (with sufficient credits to reach at least an intermediate level of competence in a relevant foreign language).

**Supporting Studies That Should be Included in International Business Concentrations**

For international business, recommended studies include economics (macro, micro), business law, accounting/use of financial information, statistics, finance and computer science.

**Specific Courses or Studies in International Business**

Studies in the following are highly recommended: theoretical background of international business, international marketing, cultural/political/legal/anthropological environments of international enterprises, international economics/finance and economic geography.

A word about concentration titles: Students who elect to design degree programs that follow those studies typical of traditional business administration programs or typical of traditional Bachelor of Science economics programs should select a degree program concentration title to reflect the traditional nature of their degree program. Some examples are: Bachelor of Science in international business or Bachelor of Science in international economics. Students who elect to design a unique degree program which includes a combination of traditional studies in individualized studies or credit by evaluation should devise concentration titles that reflect the essence of these degree programs as demonstrated in their degree program rationales. Some examples could be as follows: international marketing, international banking and international economic development.

**Concentration in Labor Relations**

The area of labor relations is related to economics, personnel management and labor studies. While students frequently approach it from either a managerial or a union perspective, the basic core concepts are the same.

Students who seek a concentration in the area of labor relations will be prepared to work in union management negotiations (collective bargaining), contract administration, union organizing efforts and what management calls “preventative labor relations.” The study of labor management relations is only one subject area within the diverse field of industrial relations. It encompasses all issues that affect the relations among organized groups of workers, employers, and government officials and agencies. It requires the need to integrate knowledge of multiple disciplines: sociology, psychology, law, economics and politics. It is heavily dependent upon history and historical precedents.

By its very nature, a degree in labor relations must be broad. Programs that go beyond studies in classic labor areas and business will be most helpful to students who intend to work in this field.

The guidelines that follow provide a basic program outline that can be augmented with additional relevant studies.

Such studies as psychology, sociology, macro and micro economics, American business or labor history, logic, the use of computers, oral communication skills, writing skills, and math and statistics are highly recommended as possible foundation studies that will enable students to do further study of a more specific nature. The skills developed through writing, oral communications and mathematics are constantly being applied in day-to-day labor relations activities.

Studies that are specific and essential to the field of labor relations include: labor economics, which looks at the underlying relationship between wages, skills, number of people looking for work and related issues; labor relations, which examines the relationship between organized labor and management; labor law, which looks at all of the laws that govern the workplace (but with an emphasis on the National Labor Relations Act and amendments, which govern the formal relationship between labor and management); labor history, which looks at the social, political and legal history of organized labor within the United States; and collective bargaining, which examines the formal process between labor and management in arriving at a labor contract.
Additional studies in the field of labor relations could include studies in labor arbitration or dispute settlement, labor and politics, international labor relations, or specific studies dealing with state labor laws (such as New York Taylor Law). Students can study great labor leaders, issues dealing with unions, multinational firms and globalization. The current issue of free trade and the impact it has on unions would make an interesting study.

Supporting studies in the personnel field would be helpful to someone concentrating in labor relations. Of specific interest would be those studies that deal with wage and price theory, employee benefits theory, employee assistance programs, total quality management and/or participative management concepts. Studies in organizational behavior also would be helpful.

In the scientific area, a knowledge of how science and technology is impacting society and the workplace would help the student understand future issues. A study in demographics and the changing nature of the work force (women, minorities, different cultures) would help the student see the different forces that are affecting labor relations. This area could include specific studies dealing with women in unions, the role of minorities in unions or related topics.

Because practitioners of labor relations are frequently called on to analyze financial data either to determine proposed changes to contracts, to recommend wage or benefit increases, or to determine ability to pay, studies in accounting and finance can be very helpful.

**Concentration in Management**

Preamble

Rapid evolution of management knowledge has made possible the capacity of organizations to effectively utilize greater human, physical and financial resources located in more diverse geographical locations than at any time previously. It no longer amazes us to find large organizations routinely coordinating the work of over a half million people at multiple locations. Because of the changes in the environment in which organizations – in both the public as well as the private sector – operate, it is imperative that degree programs in management contain evidence that the student has an understanding of technology, ethics, globalization and diversity. These four areas of knowledge are, no doubt, timeless. Managers have always had to understand systems, morality, people and geography. However, we are in a period marked by increasingly borderless dimensions that require capacity and discernment on the part of managers.

The work of managers differs from that of other members of an organization. This work involves fulfilling a variety of roles and functions that result in coordination of human, physical and financial resources to accomplish organizational purposes. Processes such as decision making are essential in all forms of organizations, including businesses, government agencies and not-for-profit groups. Since managers work with and through individuals, small groups and whole organizations, students developing a concentration in management will benefit from giving special attention to increasing their understanding of human behavior, including behavior grounded in cultures others than their own.

**Preparation**

Demonstrated knowledge that fulfills the SUNY general education requirements, will provide a desirable breadth of learning, as well as a solid foundation in useful disciplinary theory, concepts and frameworks that may prove helpful in understanding and applying organizational and management concepts.

Students pursuing a management concentration should meet the area of study guidelines for Business, Management and Economics and have a broad-based understanding of the business functions through study or experience. A management concentration also should meet the general guidelines for a Business, Management and Economics degree.

In developing proposed educational plans leading to an award of a bachelor’s degree with a concentration in management, it is recommended that students consider demonstrated knowledge in broad areas. Students should acquire knowledge about management theory, concepts and frameworks that constitute the common body of management knowledge.

This knowledge has been organized in at least four primary ways: by time (historically), levels of organizational skill, functions and roles. The student’s rationale should show where each of these areas are addressed.

The history of management traces influences on management thought and the accretion of management knowledge that can be taught, learned and practiced. Examples of studies from the historical perspectives are History of Management Thought and History of Business.

The levels of organizational skill approach organizes management knowledge around four levels that managers commonly deal with: the individual (psychology), small groups/cliques (social psychology), whole organizations (sociology, economics) and organization environment (sociology, economics). Examples of studies using this approach are Organizational Behavior, and Organizational Development and Change.

The functional approach organizes management knowledge around functions that decision makers engage in at all levels of an organization. An elemental list of such functions includes, at a minimum, planning, organizing and controlling. Examples of studies often using this approach are Management Concepts and Principles of Management.

The use of roles which managers fulfill (such as entrepreneur, disturbance handler, figurehead and leader) is a relatively recent
way of organizing management knowledge. Examples of studies using this approach are Leadership, Conflict Resolution, and Communications and Decision Making.

Additionally, it is recommended that knowledge of diversity should be demonstrated by the student. Because effective managers understand and appreciate diversity in the workplace, a degree program in management should contain evidence of this knowledge.

Management is important in a variety of institutional settings such as business, religion, education and government agencies. Managers also draw on analytical tools and theory from a variety of disciplines that provide useful intellectual tools for understanding, predicting, allocating and controlling. Programs in management are strengthened by the exhibition of knowledge in quantitative areas such as public finance, corporate finance and accounting. A well-designed program in management includes learning grounded in several different academic disciplines such as economics, psychology, sociology and mathematics.

In planning his or her program, a student should consider studying more about the institutional setting (business, government, education, religious) in which he or she is most likely to manage. Institution-specific knowledge (such as the history and development of the institution, specialized vocabulary, customers/clients, legal environment and defining events) all contribute to managerial effectiveness. For example, students expecting to manage in the public sector may choose to include studies of political science. Government or public finance might be more appropriate than corporate finance for management students expecting to enter (or continue working in) the public sector. Evolution of ways of organizing, decision making and communicating has been central to these developments. Though it's less well recognized and understood, the invention of such social technology has been as important in raising standards of living as more widely acknowledged progress in science and computer technology.

In addition students should consider including studies that help in developing knowledge and competencies in specialized areas of management to ensure that the student has acquired substantial knowledge of management theories and their application. A nonexclusive list of possible topics is:

- Organization Theory
- Operations Management
- Project Management
- Organizational Development
- Human Resource Management
- Labor Relations
- Strategic Management
- Leadership
- Conflict Management or Conflict Resolution
- Business Communications
- Decision Making

Management Concepts
Principles of Management
Organizational Behavior
Organizational Development and Change
History of Management Thought
History of Business
Not-for-Profit Management
Sports Management
Financial Management
Hospital Management
Marketing Management
Management Information Systems
Managerial Economics
Statistics
Corporate Social Responsibility
Research Methods for Management
International Management
International Business
Green Management

A capstone study, while not required, will help provide the student with the opportunity to synthesize several different studies into a final learning experience.

Additionally, students may want to consider related concentrations such as business administration, public administration or individualized concentrations such as not-for-profit management or sports management. Students should be aware that the term “administration” or “administrator” in the public sector is often used where “management” or “manager” can be used in a similar sense in the private sector of the economy.

Effective July 1, 2010

Concentration in Marketing

Background

A concentration in marketing will prepare students to make decisions to deliver value to consumers, their organizations and the wider environment. Career opportunities are numerous, as a need for marketing expertise is developing in every profit and non-profit arena, in business to business (B2B) and business to consumer (B2C), in small businesses and multinational corporations. Roles vary including those in advertising, international marketing, e-marketing, promotions, direct marketing, public relations, sales, marketing research and brand management.

Issues that currently face professionals in this field include: the drive for new products, technological changes impacting research, production and promotion, increased consumer awareness and fatigue, globalization of production and marketing channels, and ethical concerns at all levels.
Preparatory Knowledge/Studies

To prepare for a career or studies in marketing a broad liberal arts background is expected. This includes fulfilling the minimum general education requirement as stated by SUNY. Recommended studies could include: statistics, psychology, sociology, oral and written communications. These types of studies are important so students are prepared to understand consumers, the market and to be able to present and communicate well with clients.

Students should have an understanding of ethics, globalization, diversity and cross-cultural differences, and organizations. Additionally, there are related competencies and skills that all marketing students should have, including technology, communication and teamwork. Knowledge of these areas can be obtained through studies directly addressing them, prior learning or it can be integrated into other general education, business or marketing studies.

Please see the BME AOS guidelines for a review of the business-related knowledge that students are expected to have.

Marketing Knowledge/Studies

All students are expected to take marketing at the introductory level followed by at least three out of the four following upper-level studies:

1. Marketing communications or equivalent
2. Marketing research
3. Consumer behavior or buyer behavior
4. Marketing management or marketing strategy

In addition, students could consider the following studies that help in developing knowledge and competencies in specialized areas of marketing:

- Advertising
- Brand Management
- Direct Marketing
- International Marketing
- Marketing Communications
- Marketing Research
- Internet Marketing
- Business-to-Business Marketing
- Sales Management
- Logistics
- Supply Chain Management
- Purchasing
- Database Marketing
- New Product Development
- e-Commerce
- Not-for-Profit Marketing
- Public Relations

Potential titles of related and/or sub-concentrations include:

- Advertising, Brand Management, Direct Marketing,
- International Marketing, Marketing Studies, Marketing Communications, Marketing Research, Internet Marketing,
- Sales, Logistics, Supply Chain Management, Purchasing and Public Relations. Students also may wish to develop individual concentrations or subconcentrations through consultation with their mentors.

Effective July 1, 2010

Concentration in Public Administration

Public administration combines preparation for administrative responsibility in the public service with the study of the political environment. The delivery of government services and the concern for the public welfare involves the study of organization and management, the nature of the government and political decision making, the analysis of the public policy process, and the evaluation of the results of government action. Public administration differs from business administration in that the focus is on the public sector and the dynamics of governmental and bureaucratic processes which impact the administrative role.

Study of public administration involves an appreciation of the tension between political values (e.g., individual rights, representation, advocacy) and administrative values (e.g., ethics, bureaucratic efficiency, political neutrality) and the way in which the process of policy implementation affects the nature of these values.

A student with a concentration in public administration would be expected to develop an understanding of the following areas, which are essential to such a concentration: administrative or management theory; American government (national, state, local); public personnel and/or labor relations; public budgeting, finance and/or financial administration; organizational theory and/or organizational behavior; quantitative/research tools (e.g., statistics, computer); and public policy.

While the study of public policy would be expected to include policy concepts, it may well be addressed by using specific policy issues (e.g., environmental, health care, education, civil rights, etc.) for qualitative and quantitative analysis.

For an understanding of the role and function of government bureaucracy in society and the issues and challenges faced by an administrator in such bureaucracy, students are encouraged to include studies in areas such as economics, law (constitutional or administrative), intergovernmental relations, governmental accounting, history of public administration, bureaucracy, political parties and interest groups, comparative politics, international relations or public sector ethics.

Public administration has traditionally been studied as a graduate discipline. Students who expect to continue with graduate-level work are advised to investigate graduate program requirements to minimize duplication of core studies. Their degree programs may benefit from the inclusion of ample
supportive studies from other disciplines to broaden their understanding of the political and societal issues which concern and influence the practice of public administration.

Degree programs in public administration may be submitted under the registered area of Business, Management and Economics or under Social Theory, Social Structure and Change, depending on whether the degree program is constructed to be predominantly reflective of administrative aspects or of the political environment in which public administration is practiced. The Area of Study and Concentration Guidelines should be consulted for those elements common to all degree programs in that registered area.

COMMUNITY AND HUMAN SERVICES

The area of study called Community and Human Services explores the relationship of human beings' needs and values to social conditions in community living and prepares students for a wide array of helping professions and community service roles. Through study in Community and Human Services, students obtain and enhance values, knowledge and skills necessary to understand and contribute to the development and maintenance of healthy communities, groups and individuals. They analyze, develop, carry out, and evaluate methods of prevention and resolution of social and individual problems and barriers.

The objectives of studies in Community and Human Services are to prepare students for:

- work with individuals, groups and communities in problem-solving situations;
- entry or continuation in the practice of human services in a variety of areas and at a variety of levels of practice including advocacy/community organization, social policy and change, administration, and/or direct service delivery/practice/intervention with groups and individuals;
- graduate education or other forms of professional development.

Study in this area emphasizes the understanding and integration of four essential foundations each with its own set of unique competencies:

Knowledge – understanding of the interdisciplinary, conceptual base of practice, historical contexts and the nature of people who live in communities. Studies will include the history of social institutions and social change; human beings and their behavior individually and in groups; the evolution of human service systems and public policy; the impact of social, economic, political, biological and environmental factors on individuals and communities, and the relationship of social policy to human service practice.

Skills – understanding of the collaborative, helping and problem-solving relationships between the human service worker and the client. Studies will include: interpersonal skills; prevention and intervention skills; administrative skills; information management skills; research skills; advocating, community organizing and policy management skills.

Attitudes and values – understanding of the ethical basis for human service practices with individuals, groups and communities. Studies will include developing understanding, respect of, and commitment to autonomy, confidentiality, self-determination, and the basic rights of individuals and groups from diverse backgrounds.

Experience, application and practice – understanding of the settings, dimensions, systems and mechanics of human service delivery. Studies will include the experience of delivering effective services to individuals, groups and communities; contributing to the development and maintenance of healthy individuals, groups and communities through prevention, intervention, organizing and policy-making activities. Application can focus on individual, group, community and/or systems activities.

Students should explicitly discuss in their rationale essay how each of these four foundations are incorporated and demonstrated in their degree program. It is not necessary that these foundations appear in specific degree titles.

The potential concentrations are numerous and may be focused or broadly conceptualized depending upon the student’s specific interests and goals, the student’s prior learning and experience, the organizing framework, and the general expectations of recognized helping professions. The organizing framework will typically be professional/vocational; however, problem-oriented, thematic or interdisciplinary frameworks also may be appropriate.

Because degrees in Community and Human Services may take many forms, students must support their designs with clear and articulate rationales. Even in a broadly conceptualized concentration in Community and Human Services, it is not expected that all of the areas listed above will be reflected in specific study titles; however, the student should discuss in the degree program rationale how they have been explored. In more narrowly conceptualized concentrations, students are encouraged to consider and discuss in their degree program rationales whether and/or how the areas listed above may be relevant to their specific concentrations.

Sample concentrations: titles are meant to be illustrative, not exhaustive nor comprehensive.

Health care related
- Health Care Administration
- Health and Human Services
- Case Management

Human services related
- Advocacy in Human Services
- Human Service Management
- Disability Studies in Human Services
- Studies in Diversity and Human Services
Education and Training in
  Human Services
Public Safety
Economic Security

Management related
  Human Resources
  Personnel Issues for Employee Assistance Professionals
  Managed Care

Mental health related
  Intervention Strategies
  Alcohol and Substance Abuse
  Child and Adolescent Development
  Counseling Skills
  Adult Development

Social agency related
  Social Welfare Institutions
  Agencies, Systems and Organization Behavior
  Program Development
  Administration in Human Services
  Criminal Justice Services
  Rehabilitation Services

Social science related
  The Child and Family in Society
  History of the Family
  History of Social Institutions
  Social Issues
  Criminal Justice
  Studies in Social Change
  Community Studies
  Public Policy

CULTURAL STUDIES

Cultural Studies may include concentrations in communications, creative writing, expository writing, rhetoric and composition, journalism, language, literature, philosophy, religious studies and other areas.

Students designing programs in the area of Cultural Studies explore the ways in which human beings understand and articulate their world. They examine the relationship between culture as lived experience and culture as creative and philosophical expression. They explore aesthetic and cognitive forms and values within social and historical contexts; hence, Cultural Studies intersects and overlaps with various other areas of study (such as Historical Studies; The Arts; and Social Theory, Social Structure and Change). Students are encouraged to study artistic expression, social and cultural norms and belief systems, and modes of communication. Programs in Cultural Studies should include cross-cultural and historical perspectives addressing questions of gender, class and race.

For example, students who work in Cultural Studies need to develop skills in critical reading, interpretation and writing. These skills include the ability to distinguish the main point of a text from supporting argument or evidence, to evaluate the logic and rhetoric of a presentation, to identify underlying assumptions and to interpret levels of meaning. Students should also develop skills to communicate their own ideas and feelings fully, precisely, and creatively in speech and writing.

Students pursuing upper-level work in Cultural Studies should acquire conceptual vocabularies, knowledge of sources, and critical skills appropriate to their areas of focus or lines of inquiry.

Degree programs in Cultural Studies should be focused on an articulated goal and should have a relatively broad frame of reference.

Concentration in Communications

Concentrations in communications generally include studies that focus on processes, procedures, methodologies and media involved in the dissemination of information and ideas. Concentrations in communications can be achieved through a combination of studies utilizing the following theoretical, practical and historical approaches:

- a core of theory in communication methods, processes and practice in the communications field;
- studies in the development of communication theory and use; and
- study of ethical issues in communications.

Concentration in Creative Writing

Concentrations in creative writing generally include studies that will focus on the form, structure and uses of language as it is applied to the writing of fiction, poetry or drama. Creative writing is a competency-based concentration which can be achieved through studies in:

- theory (critical theory, particularly in the student's genre of primary interest);
- history (an appreciation of at least one literary genre in a historical perspective through the study of literary texts, major authors or literary criticism); and
- practices (facility in the writing of fiction, poetry or drama).

For disciplinary concentrations in creative writing, major emphasis will be placed on the practice of writing with supporting attention to theoretical and historical studies.

Concentration in Expository Writing

Concentrations in expository writing generally reflect a competency-based program that enables students to become more effective writers of expository prose. It is a program of studies for students who have mastered basic lower-division writing skills (correct use of grammar, diction, punctuation, sentence and paragraph structures; clarity, coherence and concreteness in the development of thought). Well-developed
concentrations in expository writing can be achieved through studies in:

- theory (rhetoric, grammar, logic, style or linguistics);
- history (the development of the English language either through linguistic or literary studies); and
- practice (advanced-level facility in the writing of expository prose, including some practice in professional writing and research [e.g., technical writing, business communications, advertising copywriting, journalism]).

While much of the work in the concentration should include practice in expository writing, the degree program could reflect a broad range of cultural studies in other liberal arts and sciences, including studies that will give students the opportunity to write in subject areas in the humanities and social sciences.

Concentration in Journalism

Concentrations in journalism are generally supported by studies in social and political science, literature, media technologies and the arts, as well as other broadly defined cultural studies. Such concentrations with a professional/vocational focus normally include studies leading to:

- the development of competence in various forms and styles of journalism;
- the development of skills of investigative reporting, interviewing, news gathering and journalistic research;
- internships or fieldwork;
- knowledge of the organization and development of the profession of journalism, its history and its impact on society; and
- an understanding of the procedures, rights and obligations of journalists, which includes an awareness of constitutional, legal and ethical issues.

Concentration in Languages

Concentrations in languages generally include studies leading to:

- the ability to read, write and speak the language fluently;
- familiarity with representative texts in the original; and
- competence in other areas of study relating to the language, such as culture, philosophy, history, social problems, translation and specific topics in literature, depending upon the student’s objectives.

Concentration in Literature

Concentrations in literature generally include studies that will broaden a student’s understanding of literary genres, periods, themes and major authors. Well-developed concentrations in literature generally contain studies of:

- a substantial body of literary texts including literature of different periods;
- the relationships between literature and the historical/literary contexts in which it developed;
- studies of authors outside the traditional canon; and
- critical approaches to literature.

Concentration in Philosophy

Concentrations in philosophy generally aim to develop the student’s awareness and understanding of the nature and dimensions of philosophical inquiry. Such concentrations also emphasize the development of analytical and speculative thinking, including the ability to articulate and criticize various philosophical perspectives or problems, using the vocabulary, concepts and methods that reflect the principal historical traditions in the field.

Concentrations in philosophy can be organized in different ways including thematic and non-Western approaches. For the purposes of these guidelines, the disciplinary framework is presented.

Disciplinary concentrations in philosophy generally reflect the current dominant trends, structure and content of the philosophy curriculum at most undergraduate institutions. Presently, that curriculum includes studies of:

- the major developments in the history of philosophy, and topics in contemporary philosophy;
- the major philosophical issues involved in metaphysics, theory of knowledge, ethics and social/political philosophy; and
- critical thinking/critical analysis, or theories of interpretation, or logic.

It should be noted that graduate programs in philosophy often require or include studies in logic.

Concentration in Religious Studies

The academic study of religious traditions requires the student to develop the ability to use relevant methods of critical thinking, reading and writing to analyze and assess the content of religious texts, beliefs and practices. The studies should reflect a multicultural perspective and include an awareness of diverse representations of religious expressions in their ancient, modern and contemporary forms. In addition, a program in religious studies should contain a substantive historical component that fosters an understanding of the growth and development of religions in various cultures and of significant cross-cultural relationships. The student’s program should reflect an interdisciplinary perspective that provides the student an understanding of the usefulness of diverse disciplinary (e.g., sociological, psychological, philosophical) approaches to the study of religion.

Although individuals may find religious studies useful in the exploration of their personal beliefs, prospective students should be aware that the faculty of Empire State College is committed to a pluralistic perspective in teaching religious studies, examining multiple schools of religious thought including
critiques of religion itself. The faculty’s commitment also includes the tacit understanding that no tradition has exclusive access to religious truth, however that is defined.

At Empire State College, therefore, a well-designed religious studies program should evidence:

- study of diverse religious expressions including those from the East and West;
- historical study of religion;
- consideration of the phenomenon of religion through the social sciences;
- consideration of recurring religious themes, patterns, structures, language and practices;
- examination of the place of religion in society both as an institution and as an ethical and/or moral force;
- critical study of the significance of sacred texts, scriptures, traditions, rituals and devotional practices.

**EDUCATIONAL STUDIES**

Our 21st century work and social environments require new knowledge and skills. There is an increasing need for individuals who can help others not only learn new things, but use what they know in various settings. Students who choose to design a degree program in Educational Studies have careers in areas as diverse as teaching, researching and policy making. Educational Studies degree programs are usually not the best option for students who wish to earn New York state teaching certification (see the section on teacher certification at the end of this document).

Students pursue a wide range of concentrations that may distinguish them as practitioners, researchers/evaluators, social activists, specialists or generalists. Yet, common to all Educational Studies degree programs is study of the following topics:

- Foundations of education
- Learning theories
- Instructional strategies
- Curricular design
- Diversity issues
- Uses of technology
- Social context of learning
- Methods of inquiry
- Human development
- Content as appropriate to the concentration

Students may address these topics in various ways as appropriate to their concentrations. These topics could be included in one or more studies or advanced standing components, and may not necessarily appear as these explicit titles. In the rationale, students describe how their degree program addresses these topics.

For those interested in becoming practitioners, other components in the concentration should demonstrate an emphasis on understanding learners and learning, and effective teaching and learning strategies. Concentrations may include community and family education, instructional technology, teaching and training, early childhood learning or adult learning.

Students interested in study and research on education, society and culture may design concentrations based in the social and behavioral sciences or the humanities. These disciplines might include anthropology, economics, history, philosophy, political science, psychology and sociology. The degree program for those choosing this concentration should include more than one component in methods of inquiry.

Degree programs also may be organized according to thematic or problem-oriented frameworks, with concentrations such as social change, public policy, learning communities and lifelong learning. These degree programs should demonstrate a focus on a distinguishable theme or learning context.

**Teacher Certification**

Empire State College does not have a registered teacher certification program at the undergraduate level but does offer a Master of Arts in Teaching degree that encompasses New York state teaching certification at the middle school and secondary levels.

Students interested in obtaining teacher certification as undergraduates should consult the New York State Education Department for specific requirements and share these requirements with their primary mentor. Students planning to pursue certification after completing their Empire State College undergraduate degree should consult with the college through which they plan to pursue certification. Often, undergraduate students seeking teacher certification are better served with liberal arts or disciplinary concentrations.

For more information on pathways to teacher certification, consult the Educational Studies website and talk with an Educational Studies or Master of Arts in Teaching mentor.

**HISTORICAL STUDIES**

Students interested in Historical Studies may choose from a wide range of possibilities. Concentrations may be organized by types of history (e.g., social, race/ethnicity/class/gender, political, religious, environmental, economic, diplomatic, quantitative), by national experience or geographical areas (e.g., American history, Western civilization, East Asian history, studies of regional history), by time periods (e.g., ancient history, medieval civilization, modern history, colonial/postcolonial), or by themes (ethnic studies, labor history), and in other ways. Students designing concentrations in Historical Studies should investigate graduate school opportunities and requirements. Students interested in concentrations in Historical Studies should visit the Historical Studies website (www.esc.edu/HistoryArea).
Building on the studies used to meet the SUNY general education requirement, students may design a concentration in Historical Studies using any of the college’s five organizing frameworks:

- **Disciplinary** concentrations include work in Western civilization, national, regional or ethnic histories, African-American experience, work in historical methods and historiography, and appropriate supporting studies, such as economics, statistics, literature and/or science.

- **Interdisciplinary** concentrations in Historical Studies represent a conscious attempt to explore linkages among allied disciplines from a historical perspective (e.g., anthropology, economics, literature, and languages). Study in comparative history also is frequently interdisciplinary in approach.

- **Thematic frameworks** allow a student to trace and explore one or more themes in Historical Studies.

- **Problem-oriented** frameworks emphasize consideration of possible resolutions or continuing significance of the chosen problem.

- **Professional** programs include studies vital for developing career-related skills in areas such as archival or museum employment, historical preservation and restoration, scholarly editing, and the research and writing of official histories. Students with a professional emphasis frequently include internship experiences in their degree program plans.

The faculty of the college expects that students who design degree programs in Historical Studies will acquire the following enabling skills and understandings:

1. an understanding of historical processes and events that have shaped social change and contemporary human problems;

2. knowledge of the breadth of historical writing and interpretation (the conversation within the discipline) that pertains to the topics of study included in the degree program;

3. an understanding of the linkage between historical studies and other disciplines;

4. an understanding of human experiences that go beyond a single time period and national or cultural experience;

5. an understanding of the diversity of sources that record and interpret the past, including written texts, and original documents, photographs, visual materials, oral histories, historical objects and media and of how to identify and evaluate primary and secondary sources;

6. research skills, including a basic understanding of how to use libraries and virtual libraries, archives, databases and other Internet resources;

7. knowledge of the forms of citation shared by professional historians, especially the conventions known as the Chicago/Turabian style; (see the Historical Studies website)

8. the ability to analyze and interpret historical resources and perspectives and to make judgments, to explore causal relationships, to seek order and patterns, to ask why and how – not just simply report;

9. the ability to think critically and communicate effectively;

10. an understanding of history as a creative art, a subjective discipline and an imaginative interpretation of the past.

Finally, students designing concentrations in Historical Studies are encouraged to include a capstone study or a final integrating independent study.

**HUMAN DEVELOPMENT**

Students of human development seek understanding of psychological, social, biological and spiritual change over the life course. Change can take the form of growth, maturation, loss and/or impairment, as well as enrichment of human potential. Concentrations may encompass the life cycle or may focus on a particular age group (prenatal and infants, children and/or adolescents, adults or elderly); population (women, men, transgendered); situation (grieving and loss, incarceration or disability); or theme (health, environment, cultural differences). All concentrations should place these studies within contexts such as family, relationships, community, society, culture and/or the natural environment.

Students of human development have an opportunity to pursue and integrate personal, academic and professional goals. Many students find that what they learn enables them to better understand themselves and others, enhances their ability to work with people in various capacities, and prepares them for more advanced or graduate study.

Students of human development must demonstrate coverage of the following topics either through a study, a series of studies, components within a study or college-level knowledge through the PLA process. Students should obtain a broad foundation of knowledge in these topics before progressing to advanced studies, covering a range of theoretical perspectives and explanatory models about the process of human development across the life span. They should plan to fully explain how they have obtained knowledge in these topics in the rationale essay submitted with their degree plan.

**Biopsychosocial Development** – 1) an understanding of biological, physiological and neurological change over time; 2) an understanding of cognition, emotion and the behavior of individuals across the lifespan; 3) an understanding of interpersonal processes and social relationships; 4) an understanding of social and cultural influences on development; and 5) **interactions of the above** – an understanding of how the
social, psychological and physical influence each other across the lifespan, contributing to change over time.

**Individual Differences** — an understanding of characteristics, influences and developmental outcomes (such as a study in personality theory or abnormal psychology), as well as human diversity (the range of differences in human experience and how that influences development).

**Contexts for Development** — an understanding of the micro-level contexts for change (such as relationships and family) as well as an understanding of the macro-level contexts (such as community, culture and society).

**Methodologies for Inquiry** — an understanding of the body of principles, approaches and techniques employed by a particular branch of knowledge, which may be either quantitative or qualitative. This should encompass hypothesis development, systematic data collection and analysis, and research reporting conventions.

One concentration title within Human Development has particular meaning in the wider academic community, and that is psychology. A psychology concentration is expected to meet the rigors of the discipline, including methodology and specific studies. Students planning a psychology concentration should consult Advice for Students Developing Concentrations in Psychology in the Student Degree Planning Guide.

*Effective Oct. 1, 2009*

**Advice for Students Developing Concentrations in Psychology**

Provided that they conform to the area of study guidelines, many concentrations related to children, adolescents, adults and families may fit well within the Human Development area of study. Psychology, however, is the only disciplinary concentration in Human Development, and as such, studies in this concentration should be selected so as to meet the general expectations in the field. In recent years, the field of psychology has changed and expanded so that psychology departments are ever increasingly diverse in their offerings. Thus, it is no longer feasible to provide students with a single comprehensive plan of studies that “covers” the field. Instead, when developing their programs, students and their mentors should together consider the possibility of either emphasizing a particular focus or direction or designing a general plan of study in psychology that provides a basis for graduate school or some other specific goal. This section is designed to provide some assistance in that planning process.

**Human Development Website**

The Empire State College website (www.esc.edu) contains much information for students who are in the process of designing their degree programs. The Human Development website (http://www.esc.edu/humandevarea) has relatively up-to-date information that also may be relevant to students concentrating in psychology. Thus, we suggest that students check this site as they begin their investigations and that they make use of the Internet in seeking out additional information.

**The American Psychological Association (APA)**

The best source of current information about psychology, however, will come from the APA. We strongly recommend that all students concentrating in psychology become student members of this organization. (The student membership fee is a bargain compared to the professional member fee.) Applications are available from Human Development mentors, or by contacting directly:

American Psychology Association  
Membership Office, 750 First St. NE  
Washington, DC 20002-4242  
202-336-5500 or 800-374-2721 (ext. 5580 for membership)  
www.apa.org

Membership in this organization brings with it two publications: The APA Monitor, an easily accessible monthly magazine with current news about research, education, policy, legal issues and jobs, and the American Psychologist, a monthly journal with scholarly articles of general interest to all professional psychologists, often with a focus on application. The APA also publishes a large number of other journals and books, which are available to members at a discount. Of particular interest to undergraduates are the following:

APA, *The Publication Manual of the American Psychological Association*  
Woods (ed.), *Is Psychology the Major for You?*

The first book, an important reference for every student who concentrates in psychology, describes how to write a research article, defines the APA writing style, and provides details about how to cite and list any and all kinds of references. The second book presents an overview of the discipline, describes the kinds of critical skills psychology students can acquire, and offers a description of a variety of careers open to psychology students. While most students might want to purchase “The Publication Manual of the American Psychological Association,” the second book can probably be borrowed from a library (or possibly a Human Development mentor).

**The Undergraduate Concentration in Psychology**

There are three major sources of information about how undergraduate degree programs in psychology might be constructed. First, recent articles published in the American Psychologist will bring students up-to-date on the kind of curriculum professional psychologists believe best serve the undergraduate student. To date, three such articles are relevant and useful:


Of the three articles, the most directly relevant, and possibly the most useful, is still McGovern et al. (1991). However, reading all three articles will give students a good understanding of why psychologists have been and continue to be reluctant to propose a standardized curriculum for all students. The history is interesting, and the issue of standardization is one that extends well beyond the discipline of psychology.

A second source of information comes from examining the degree programs designed by other colleges. Students seeking to concentrate in psychology should collect at least six different programs from a variety of other colleges and universities. They should be examined for commonalities and differences, as well as for some basic underlying logic or structure. These catalogs are generally available in any library (as well as high school guidance offices); however, students also should be able to access them through the Internet, in particular through a link to college catalogs via the Empire State College website.

A third source comes from interviewing people who work as psychologists or who use psychology in their jobs. They should be asked about the studies they took that are useful to them, studies they undertook that have not been useful, and studies they did not take that would have been useful. Finally, they can simply be asked for advice. Two or three such interviews can be very helpful to students as they design their degree programs.

Please note that in itself an undergraduate concentration in psychology is not sufficient for a career as a psychologist. The objective orientation and quantitative skills emphasized in most psychology studies, however, are highly regarded by many employers in almost any profession. Thus, the concentration can still be useful for those with bachelor’s degrees that are immediately seeking work. For any professional work in psychology, however, a graduate degree, in many cases a Ph.D. or equivalent, is essential, and several of the better known options are described below.

Of course, a psychology concentration prepares students not just for graduate programs in psychology, but also for many other professional programs, such as in law, business, education, health or social work. If graduate study in any field is a possible goal, either immediately or in the near future, the degree program ought to be designed with that possibility in mind. Students should familiarize themselves with graduate school entrance requirements and make every effort to include them in their program.

Psychology Ph.D. Programs

A Ph.D. is the degree of choice for those wishing to become a professional psychologist – either in applied areas (e.g., mental health and industry) or in higher education. Students who plan on pursuing a Ph.D. should take special care in the design of their programs. The following studies are almost mandatory:

- Statistics, research methods and laboratory studies. Not only do many graduate schools expect such studies, but also they will be required again in graduate school. An initial exposure to them in an undergraduate program will make them somewhat easier to deal with later on.

- Exposure to the practice of psychology. It is particularly helpful if the student serves as a research assistant in a psychology laboratory or research project at a local college or university and/or does an internship with a known state or local nonprofit agency. The student’s supervisor can provide invaluable letters of recommendation to graduate schools. This experience also is an important indicator to graduate schools about the seriousness of the student’s commitment to the field.

- Coverage of the “traditional” areas within psychology that are part of the Psychology Subject Test of the Graduate Record Examination (GRE). Information about the content of this test, which is often required of graduate school applicants, can be found in the yearly GRE Information and Registration Bulletin. These can probably be obtained from your mentor or directly from the Educational Testing Service by checking the website, www.gre.org. The latest booklet provides the following breakdown of the areas covered in the examination:

  - Experimental or natural science 40 percent
  - Learning, language, memory, thinking, sensation and perception, physiological psychology and ethology
  - Social science 43 percent
  - Abnormal and clinical, developmental, social and personality
  - General 17 percent
  - History, applied psychology, measurement, research designs and statistics

Overall, it is important that the undergraduate program be heavily academic (as opposed to vocational or professional). Graduate psychology departments are not impressed with counseling, therapy or psychoanalytic courses on undergraduate transcripts. The faculty in most Ph.D. programs believe that such courses should be undertaken only in graduate school.

Psy.D. Programs

The Doctorate in Psychology is a more recent degree designed for those with applied interests, particularly in clinical psychology, and with relatively less interest in the research and science emphases of accredited Ph.D. programs. Although these programs differ from the Ph.D. programs, the requirements are quite similar. Students interested in more information should examine the December 2009 issue of the American Psychologist.
for the latest list of programs (Psy.D. as well as Ph.D.) accredited by the APA. Details about their requirements should then be obtained from the universities directly.

Master in Social Work (M.S.W.) Programs
The M.S.W. offers a faster route than the two doctoral programs to state-recognized credentials for doing clinical work with individual clients. In New York state, holders of this degree (along with those holding a Ph.D., Psy.D. or M.D. in psychiatry) can receive third-party payments as a therapist. Those schools that offer these programs are usually more flexible in the knowledge of psychology that they expect or require of their applicants. Some may even welcome the kinds of counseling experiences frowned upon in typical Ph.D. graduate psychology programs. A key activity here is to carefully study the entrance requirements for particular programs. If possible, the graduate advisor at the schools that offer these programs should be interviewed – they might even provide direct advice about a student’s proposed degree plan.

Master’s Degrees in Psychology
A number of master’s programs in psychology can be found at many different colleges, either in the liberal arts or in specialty areas such as counseling or school psychology, art therapy, alcoholism studies, and so forth. The general liberal arts programs clearly extend students’ knowledge and understanding of psychology and no doubt enhance their lives or work skills, but these programs are not intended as preparation for a profession. The specialty programs, however, particularly if accredited by the appropriate professional association, do prepare students for work. The colleges or universities that offer them should be able to provide solid information not only about requirements and curricula, but also about post-graduate employment.

The Degree Program Rationale
Once the concentration studies have been selected according to the needs, interests and future plans of the student, the psychology concentration must be defended in a written rationale. Such a rationale will ordinarily include at least the following information:

- The student’s goals or purposes in seeking a concentration in psychology
- A description of the activities undertaken to learn about psychology concentrations, namely:
  - books or articles read;
  - undergraduate catalogs consulted;
  - interviews undertaken; and
  - if appropriate, graduate programs examined
- an accounting of what was learned from those activities;
- a specification of how the studies selected in the concentration fit together;
- a description of how the selected studies address the Human Development area of study guidelines; and
- an explanation of the underlying logic and structure of the entire degree program.

INTERDISCIPLINARY STUDIES
Bachelor’s Degrees
A key characteristic of concentrations within Interdisciplinary Studies is that they bridge two or more program areas so as to connect or combine the different perspectives of those areas. These combinations and linkages can be developed in two ways: (1) by including studies from two or more areas that relate to a single theme or topic (e.g., various business courses and communication studies combined into a concentration called communication in organizations) and (2) by combining different area perspectives within a single study (e.g., political, economic, literary and social perspectives combined in a study titled modern China). Most interdisciplinary concentrations include both types of study.

Some concentrations are interdisciplinary by nature and are already recognized and defined by the scholarly community, for example, environmental studies, cognitive science or Native American studies. Students with such concentrations may wish to examine survey or introductory textbooks and to study college catalogs to determine what these known concentrations typically cover. On the other hand, an interdisciplinary concentration also can be created from scratch to match a particular student’s interest. As with all concentrations, it may be focused upon a theme, problem or profession, or on a topic that necessarily includes several disciplines. Examples that illustrate some of these features (selected from approved student programs) include arts management, culinary educational studies, holistic health and writing as therapy.

As with all concentrations, the structure of Interdisciplinary Studies concentrations must meet the college’s expectations of progression and integration. Progression refers to a significant development in the program from introductory to increasingly advanced learning. It is usually demonstrated when the concentration includes foundation studies in the different areas and further studies that either refine the foundation areas and/or combine different areas relevant to the concentration. Integration refers to the concentration’s organization or form, in other words, the way in which the different individual studies come together to support or define the concentration’s theme or topic.

A common way of establishing a concentration’s integral structure is, first, to subdivide the concentration into three or four major areas that in the student’s view cover the key components of the problem or theme of the concentration and, second, to identify which studies in the degree program belong to which component. The component parts might be entirely original with the particular concentration, or they
might be borrowed from the guidelines of other program areas. For example, a professionally-oriented interdisciplinary concentration might be viewed as consisting of studies in history, theory and practice. Or, a social science-oriented concentration, borrowing from psychology, might be seen to consist of studies in academic methods (e.g., research or evaluation skills), disciplinary surveys, relevant practice skills (e.g., interviewing, counseling, problem solving), and integrated advanced-level studies. The concentration components could also be content based. For example, a concentration in women's health could be subdivided into three main areas: studies about women, studies about health, and studies that integrate women and health. Note that the subdivisions of an interdisciplinary concentration are typically not the different disciplines or perspectives that make the concentration interdisciplinary; rather, each subdivision is itself a combination of perspectives.

It is when the subdivisions are combined that the concentration is defined as a whole. In recognition of the importance of the whole, a unique requirement for interdisciplinary concentrations is the inclusion of one study that explicitly integrates (or stitches together) the key component parts. In most instances, this integrating study carries the same title as the concentration. Depending upon the student's needs, it can occur at any time during the student's studies.

The written rationale also plays an important role in defining the Interdisciplinary Studies concentration. To provide an adequate account of the purpose and meaning of the concentration, beside the usual topics, the interdisciplinary rationale also should include an explicit discussion of the different program areas represented in the concentration, the underlying structure (method of integration), the nature of the integrating study and the student's reason(s) for choosing the interdisciplinary program for his or her concentration.

The following interdisciplinary examples have been developed as illustrations. Please note that these particular examples are not prescriptive. These programs could have consisted of any number of other studies or types of organization. The left column shows how the structure of the example was conceptualized, and the right column lists those studies that comprise the example components. The integrating study is marked with an asterisk.

**Women's Health**

In this example, the concentration draws upon studies from Science, Mathematics and Technology; Community and Human Services; Human Development and Cultural Studies. Progression is shown by foundation studies in the different disciplines, intermediate- and advanced-level integration studies, and the integrating study, women and health, serves as a capstone to the entire program. Note that the structure here is by content rather than function.

**Health**

Human Biology  
Nursing Arts  
Personal Adjustment  
Human Development  
Health Psychology  
Health Industry in the U.S.

**Women**

Introduction to Women's Studies  
Adolescence: Growing Up Female  
Feminist Theory  
Middle and Old Age:  
Social Issues for Women

**Women and Health**

AIDS: Special Issues for Women  
Mental Health Problems for Women  
Medical Approaches to Aging:  
Gender Issues  
* Women and Health: Past and Future

**Professional Training and Development**

This concentration combines studies from Human Development and Educational Studies along with studies from either Business, Management and Economics, or Community and Human Services depending upon the student's orientation. Progression is shown by foundation studies in psychology, education, communications and human services (or business) and integrated studies that are largely intermediate and advanced. The integrating study is an intermediate-level survey of the purposes and methods of professional training and development.

**Single Perspectives**

Human Development Foundations of Education  
Basic Communication Skills  
Overview of Human Services (or Survey of Business Organizations)

**Integrated Studies**

* Professional Training and Development: Purposes and Methods  
Adult Development and Learning  
Workshop Design and Implementation  
Learning Theory

**Methods of Analysis**

Program Evaluation  
Tests and Measurement in Education Statistics

**Criminal Justice**

In this example, the concentration draws on studies from Community and Human Services; Social Theory, Social Structure and Change; and Human Development. Progression is shown by foundation studies in human services, sociology and psychology as well as introductory surveys in criminal justice and corrections, by intermediate and advanced studies in the different areas (e.g., probation and parole), and by advanced integrated studies (e.g., crime and poverty, ethnic issues in corrections). The integrating study in this program is an introductory survey of the entire field.
**History**
- Introduction to Criminal Justice
- Incarceration in America: A History

**Theory**
- Theories of Correction
- Introduction to Sociology
- Human Behavior
- Crime and Poverty
- Ethnic Issues in Corrections
- Crime and Corrections in the Middle East and Europe

**Practice**
- Criminal Law
- Probation and Parole
- Program Evaluation
- Statistics
- Internship: Division for Youth

(Please note that a criminal justice concentration also could be designed to fit within the Community and Human Services program area or as a specialty of sociology within the Social Theory, Social Structure and Change program area.)

## Associate Degrees

Students select the Interdisciplinary Studies program area for their associate degrees for at least two very different reasons. One reason is that students may wish to construct an interdisciplinary concentration or focus along the lines of the bachelor's degree program but with fewer credits. For them, the bachelor's degree guidelines can be followed although without so much emphasis upon progression and comprehensiveness. A second more common reason for choosing the Interdisciplinary Studies area of study is when students are either not yet prepared or do not wish to construct a comprehensive concentration or focus. In this case all studies are listed within a single column (see page 60), and the program can be regarded as somewhat comparable to a broad liberal arts or social sciences major at local community colleges. The concentrations of such programs have no title, or they may be called general studies, liberal arts and sciences or interdisciplinary. The student should consult the mentor about the appropriateness of a one-column or two-column format for the associate degree. A program with a concentration in liberal arts and sciences, for example, may employ a one-column format or a two-column format that differentiates liberal studies and nonliberal studies.

Although single column programs are not organized around a concentration or focus, they still have an order or an underlying organizational plan. The purpose of these programs is to introduce the student to a broad spectrum of studies that illustrate different (often conflicting) concerns, perspectives and methods of higher education's academic disciplines. At the same time, the program also can include foundation studies in areas that interest the student, in particular, his or her projected concentration for the bachelor's degree (assuming it is known), and associated fields, regardless of whether they fall within an existing discipline.

In designing these programs students need to explore and understand the meaning of a broad spectrum of studies. Traditionally, breadth is defined by including in a program a minimum of two or three studies from each of the broad areas of the humanities, the social sciences, and the natural sciences and mathematics. A slightly different way of defining breadth might be to include a couple of studies from each of a number of Empire State College's different program areas. The traditional approach will ensure that students will be introduced to a number of existing disciplines (such as psychology or history); the program area approach also will introduce students to subject areas where several disciplines are explicitly combined (such as women's studies or environmental science, see the Center for Distance Learning Catalog: http://www.esc.edu/esconline/across_esc/cdl/cdl.nsf/wholeshortlinks2/Distance+Learning+Catalog?opendocument, for other good examples). Although both approaches, alone or in combination, are appropriate, they are by no means the only way of conceptualizing breadth (see page 13 or read “The Challenge of Connecting Learning,” published by the Association of American Colleges and Universities for other ideas).

The key requirement is that once students determine how breadth is to be achieved in their program, they must explain it in their written rationale. They need to describe how their interpretation of breadth meets their own particular needs and purposes and how it provides underlying structure to their program. Thus, the rationale becomes as important a part of the associate degree program as the actual selection of studies.

## LABOR STUDIES

Labor Studies comprises an examination of work, workers and worker organizations both historically and in a contemporary context.

Labor Studies is an interdisciplinary field that draws upon the methodologies and subject matter of the social sciences and humanities. Scholars in other interdisciplinary fields, such as American studies, women’s studies and African-American studies, also have helped to define Labor Studies methodologically.

Concentrations in Labor Studies generally include studies that focus on aspects of history, sociology, economics and politics pertinent to labor. In addition, Labor Studies students should be able to express their ideas clearly, both orally and in writing, and should be capable of undertaking research in relevant areas.

While Labor Studies degree programs will vary in focus and approach, they should include exposure to:

- historical perspectives on the changing nature of work and the role of workers in effecting social change;
- theories of social stratification and the interaction of class, race and gender;
• examinations of economic, social and political change as they affect workers in the United States and internationally; and

• quantitative or other methodological perspectives appropriate to the concentration.

A variety of degree designs can correspond to the guidelines. While no individual degree program need include all of the following, Labor Studies students consider such topics as:

• the breadth of labor studies – the interdisciplinary characteristics of labor studies; methodologies that labor studies specialists draw from the social sciences and humanities; subject matter from other disciplines relevant to labor studies.

• labor history – the impact of workers and labor movements on historical development; how history has shaped labor’s role in society; how organized workers and those outside trade unions have come to recognize distinct interests and traditions; and how workers formulated strategies for defending and extending their interests in light of employer interests and government policy.

• institutional dynamics – what labor organizations do and how they function; how workers utilize political institutions to achieve their goals; how family, community and educational structures define labor; how racial, gender and ethnic identities influence work, the workplace and the labor movement.

• social and cultural factors – how class, racial, ethnic and gender divisions function within society; how social identities are formed and social inequalities maintained or modified; how people experience and affect social structures and institutions.

• how the economy affects labor – how market economies create the framework for labor movements; how worker and employer interests manifest themselves in the workplace; how wages are determined; how local, regional and international economic development affect labor.

• labor-management relations – how workers organize unions; how workers bargain for and enforce contracts; how labor addresses such issues as wages, hours, health and safety, and social benefits; how management responds to worker strategies; how legislation mirrors and influences labor relations; and how government’s role in labor-management relations changes.

• workers outside the United States – the degree to which the histories, interests and institutions of workers in other countries are similar to those of their counterparts in the U.S.; regional or global trends that affect workers in different parts of the world.

• images of workers – how images of work, workers and their organizations are depicted in literature, the arts and the media; how workers create images of themselves.

• theories of the labor movement – philosophies that analyze, influence and reflect labor’s growth; how the labor movement shifts divergent perspectives regarding short-term and long-term objectives.

Note: the Labor Studies area of study is offered only in New York City and through distance study.

NURSING

The Bachelor of Science in Nursing prepares registered nurses for a broader scope of nursing practice and leadership roles in health care organizations and community health care settings. The nursing program provides a flexible and affordable pathway for nurses to pursue advanced degrees. Depending on your academic background, to earn a bachelor’s degree in nursing at Empire State College, you complete 60 - 68 credits including 40 credits of required nursing courses.

The baccalaureate degree nurse functions as a responsible, competent and accountable professional with a commitment to personal and professional growth. The faculty believes that the baccalaureate-prepared nurse encompasses the roles of care giver, change agent, client advocate, client educator, collaborator, communicator, counselor, leader, manager and research consumer. Among the behaviors essential to the implementation of these roles are caring/nurturing, effective communication, ethical judgment, critical thinking, problem-solving, independent decision making, leadership, information management and understanding of human values. In addition, baccalaureate nursing education promotes the value of lifelong learning and the commitment toward professional growth and development.

Program Mission and Goals

The mission of the RN to B.S. in Nursing program is committed to advancing the education of registered nurses to meet the growing needs of complex communities and the nursing profession. Nursing graduates will be well prepared to provide evidence-based comprehensive nursing care that encompasses the science and art of nursing and establish a caring and nurturing environment respectful of human needs and diversity.

Empire State College and the RN to B.S. in Nursing program will:

• provide an innovative online baccalaureate nursing curriculum which addresses the educational and career advancement needs of registered nurses and the health care needs of diverse populations.

• impact the nursing profession by preparing nurse leaders of tomorrow who are committed to the advancement of the nursing profession and the provision of the highest quality culturally competent care.

Program Philosophy

Nursing as a profession is concerned with client systems and interactions within a diverse environment. The client is defined as individuals, families, groups and communities possessing spiritual, physiological, socioeconomic and psychological needs. The client’s perception and interpretation of these needs impacts
their health and the healing process. Therefore, the faculty views the client as an evolving, culturally diverse, interacting system with dynamic needs.

The faculty believes the environment incorporates both the internal and external surroundings of the client. Using evidence-based practice, the professional nurse is able to assess the environment and identify both favorable and adverse conditions affecting the client’s ability to attain and maintain optimal health.

Health is defined by the client’s perception, interpretation and responses to spiritual, physiological, socioeconomic and psychological needs.

Nursing is a unique blend of the arts and science. Caring is the essence of the art of nursing. This is successfully accomplished with the synthesis of knowledge derived from integration of natural and behavioral sciences which affirms the only constant is change as well as the humanities which speaks to the art of the profession in ethics, spiritualism and cultural diversity.

Program Outcomes
The nursing program graduate will be able to:

• apply critical thinking and ethical decision-making skills while delivering professional nursing care across diverse environments to individuals and communities.

• communicate effectively and collaboratively with patients and their families as well as other interdisciplinary team members to improve outcomes.

• demonstrate respect for human dignity and diversity.

• implement evidence-based nursing to ensure comprehensive care respective of human needs and diversity.

• promote the health of individuals and communities through global health care perspectives.

• demonstrate commitment to the nursing profession through personal and professional lifelong learning and advancement.

SUNY Empire State College expects graduates of the RN to B.S. in Nursing program to value and demonstrate evidence based practice, professionalism, leadership and life long learning.

Required Nursing Core Courses
There are nine core nursing courses and one nursing elective required for the bachelor’s degree in nursing. All 40 credits are advanced level and some are liberal studies (LS). For the two clinical courses, placements may be in the student’s community of choice. The student and faculty mentor determine appropriate clinical experiences and consider professional needs and interests.

Educational Planning: Transition to Baccalaureate Nursing
Advanced Health Assessment
Pharmacology
Nursing Informatics
Nursing Research
Health Care Delivery Systems and Policy
Professional Issues and Leadership in Contemporary Nursing
Community Health Nursing*
Advanced Clinical Experience*
Nursing Elective (4 cr.)
*course requires clinical participation

Descriptions and requirements for these courses are found online at the Center for Distance Learning Catalog: http://www.esc.edu/esconline/across_esc/cdll/cdll.nsf/wholeshortlinks2/Distance+Learning+Catalog?opendocument.

Nursing student sample degree programs and additional specific information on educational planning plus program and course requirements can be found in the Nursing Student Supplemental Handbook and nursing program Web page. http://www.esc.edu/Nursing.

Revised May 2010

SCIENCE, MATHEMATICS AND TECHNOLOGY
Program Goals
Concentrations in Science, Mathematics and Technology (SMT) may include work in the natural sciences (physics, chemistry and biology), mathematics, computer science and a range of technological, applied science and health-related fields. Organizing frameworks may be disciplinary, interdisciplinary, thematic, problem oriented or professional/vocational.

Since knowledge in Science, Mathematics and Technology is rapidly and continually evolving, students must develop an awareness of the field or area as an ongoing area of inquiry, including knowledge of recent developments. They should develop skills for acquiring knowledge independently, in order to avoid scientific and technological obsolescence.

The SMT degrees should demonstrate both breadth and depth. Degrees should be designed to provide the student with an understanding of the definition and scope of a field or area, including its fundamental laws and concepts. Science,
Mathematics and Technology students also should pursue a progression of study that leads to the development of in-depth knowledge and skills, and an increasingly critical and sophisticated understanding of the theoretical and conceptual models of the field.

Program Objectives
Students with degree programs in Science, Mathematics and Technology should demonstrate:
• an understanding of the definition and scope of a field or area including its fundamental laws and concepts, including:
  - a working knowledge of the vocabulary of a field
  - an understanding of fundamental principles by applying them to a variety of problems or situations
• basic competencies needed to work in science, mathematics or technology, such as:
  - working knowledge of needed experimental techniques, including data acquisition and interpretation
  - working knowledge of needed mathematics
  - communication skills appropriate to their fields including reading, writing and presentation skills
  - familiarity with established computer applications to the particular field of interest
• a critical perspective that allows them to compare and evaluate theories, models and experimental work.
• an awareness of the wider context in which science and technology operate, i.e., understand the relationships between science, technology and society.

Additional specific guidelines have been developed for concentrations in the following areas:
• biology
• chemistry
• computer science
• information systems
• mathematics
• physics
• technology

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Concentration in Biology
Biology is the study of the structure and function of living systems. Its foci range from the submicroscopic (molecules, organelles) and microscopic (cells) to the macroscopic (organs, organisms, populations). An understanding of the interrelatedness of these increasingly complex levels of organization is essential to the development of a biological perspective.

The study of biology should include an overview of the biological subdisciplines through an introductory survey or through a series of studies in those subdisciplines that provides exposure to knowledge at each level of biological organization. Laboratory and field experience should be integrated with theory in these studies. Studies in chemistry, physics and mathematics are essential for in-depth understanding of biological systems and are required for advanced-level work in biological sciences. Computer literacy is advisable.

In developing the concentration, at least one advanced-level study should be included from each of the major areas. Examples of possible studies follow:
• cellular/molecular biology (cell biology, genetics, microbiology, molecular biology, biochemistry);
• organismic biology (comparative anatomy, physiology, plant biology, invertebrate zoology, marine biology); or
• population biology (evolution, ecology, epidemiology, animal behavior).

The remaining advanced-level studies in the concentration can either be focused in a single area of biology or be distributed among the different areas according to the student’s preference.

Studies in different biological subjects often cover the same topics in different context. For example, the mechanism of cell division is addressed in studies of cell biology, genetics, zoology and botany. This overlap is advantageous; repetition allows the student to view the topic from several perspectives. The resultant integration permits the development of an understanding of the functional relatedness of living organisms and demonstrates the unity of the various disciplines within biology.

Finally, the student may wish to include interdisciplinary studies in which biology is considered in a social, ethical and behavioral context and where biology serves to illuminate evolving contemporary concerns such as environmental problems, the AIDS epidemic, genetic engineering, public health, human sexuality and nutrition.

Concentration in Chemistry
The science of chemistry is concerned in the broadest sense with the structure and “behavior” (properties and reactions) of the material world. On one end of the spectrum (atomic structure) it overlaps strongly with physics, while on the other end (biochemistry) it overlaps with biology. Traditional disciplinary majors in chemistry typically include 32 - 40 credits of study in chemistry, and 16 - 24 credits in mathematics, computers and cognate sciences.

Concentration studies in chemistry should provide an understanding of the primary principles, concepts, facts and theories across the discipline. The concentration should, therefore, include study in chemical structure, synthesis, dynamics and analysis. In a traditional chemistry major this is accomplished by coursework in general/inorganic, organic, analytical and physical chemistry.
Chemistry is an experimental science. Whatever the focus, the concentration also should provide a working knowledge of chemical laboratory methods, including basic techniques and skills of careful quantitative measurement, experience with application of the most commonly used instrumental methods and purification methods, and ability to present and interpret laboratory results in a clear and well-organized fashion.

Some skill in mathematics and quantitative reasoning is important for understanding chemistry and working in the discipline. At the very least, a good working knowledge of algebra is needed, as well as an understanding of the application of statistics to scientific measurement and some basic understanding of the fundamental concepts and principles of calculus. The amount of mathematics needed beyond this will depend on the focus of the concentration.

Fundamental knowledge of the topics usually covered in general physics (including electricity and magnetism, electromagnetic radiation, heat and energy, and work) should be provided for in the degree program. Depending on the focus of the concentration, additional study or learning in physics, or biology, or other science areas may be important. History and philosophy of science can provide a useful broader perspective.

The computer has become an essential tool for work in almost all areas of chemistry. At least basic proficiency in the use of a computer as well as some understanding of its range of applications in chemistry (data collection, analysis and presentation; modeling, simulation and problem solving; information storage and retrieval) is important.

Progression and depth in the discipline can be demonstrated by evidence of learning or additional studies across the discipline at the more advanced level, or by focused learning on selected areas or topics (e.g., physical organic chemistry, polymer chemistry, chemical thermodynamics, coordination chemistry, biochemistry, environmental chemistry, theoretical and quantum chemistry, etc.). Advanced laboratory experience also should be included, and might be focused on one or more areas, such as physical chemistry measurement, or synthetic methods including purification, separation and characterization methods, or analytical methods.

Finally, familiarity with some of the major journals and primary literature of the discipline should be provided for in the concentration. A final integrative study or research project provides an excellent opportunity to develop or demonstrate skill in the use of this literature.

Concentration in Computer Science

Computer science focuses upon those aspects of the computer field that have developed a well-defined set of abstract concepts and principles. Thus, the objective of a concentration in computer science is to demonstrate a strong comprehension of those abstract concepts and principles – the theory of the field – and to implement, demonstrate and test this theory via a computer. As a result, a concentration in computer science would be a good choice for someone interested mostly in algorithms, systems programming or computer hardware design.

Computer science, as a disciplinary concentration, probably would not be the best choice for someone primarily interested in specific, real world problem solving in the business world. For such individuals, concentrations in information systems, information technology, or computer studies would generally be more appropriate.

These recommendations for formulating concentrations in computer science are based on the Computing Curricula 2001: Computer Science written by the Joint Task Force on Computing Curricula: IEEE Computer Society and Association for Computing Machinery. These are general guidelines; students must consider these guidelines in the perspective of their individual goals. For example, students considering graduate school should do further research into the expectations for preparation for graduate work.

Mathematics

Mathematics forms the foundation for much of computer science. Students are expected to develop facility with mathematical language and symbols.

Because of the central and prerequisite position of discrete mathematical ideas within the field of computer science, study of discrete math is required. If a student does not have prior learning in discrete mathematics, that student should consider appropriate mathematical preparation in an early contract (though not necessarily the first). In the study of discrete math, the student should acquire a working knowledge of functions, relations and sets; basic logic; proof techniques; basics of counting; graphs and trees; and discrete probability.

Additional studies commonly include linear algebra, calculus or finite mathematics, although of course, there are other possibilities.  


2. Students pursuing concentrations in computer science are assumed to have facility and confidence with algebra. Algebraic symbols are the language of all “higher” mathematics, and the assumption is that students understand the meaning of algebraic expressions and can carry through algebraic computations with confidence. Students who do not have skill and confidence with algebra must address this issue very early in their program, before they undertake any study related to computing.

3. The study of calculus has been the traditional method by which students have developed mathematical skills. Because of this tradition, there are usually several examples and some algorithms in advanced-level study which draw on ideas of calculus. So studying calculus is still useful. But calculus is about continuous variables, while computers work with discrete variables. For that reason, topics such as linear algebra or finite math are usually more directly relevant to computing.
Programming
Students are expected to develop their understanding of programming beyond the skill level (that is, beyond the particular commands and syntax of a specific language) and develop an understanding of the general principles and characteristics of programming and programming languages. This includes algorithms and problem solving with an emphasis on fundamental data structures as well as recursion, object-oriented programming and event-driven programming.

At least some portion of a study should be devoted to object-oriented programming.

Computer programming is one step in the software development process; it is the implementation of the solutions to problems. Within a computer science degree, it is not an end unto itself. The implementation of a problem solution or an algorithm in a particular language is coding, and while coding is a valuable skill, the conceptual understanding of the principles involved in developing solutions and algorithms, implementing them via standard reproducible methods, and explaining them clearly are as, or more, important than coding. Therefore, it would not be expected that students would have a large number of programming languages as the focus of their degree plan.

Algorithms and Complexity
Computer science studies are expected to include the study of algorithms and complexity including basic algorithmic analysis, algorithmic strategies, fundamental computing algorithms, distributed algorithms and basic computability.

Architecture, Organization, Operating Systems and Net-centric Computing
Students are expected to demonstrate knowledge of computer architecture and organization, operating systems and net-centric computing.

Software Engineering
Students should develop an understanding of software engineering that links theory with practice. Such study might include software design, using APIs (application programming interfaces), software tools and environments, software processes, software requirements and specifications, software validation and reliability (quality), and software evolution. Systems analysis and design is different from software engineering and it is possible that students might develop a program that would include the former along with additional components to achieve the desired linking of theory and practice.

Social and Professional Issues
The Science, Mathematics and Technology area of study guidelines specify that, “student’s degree studies should provide an awareness of the wider context in which science and technology operate.” In the case of computer science, it is expected that such study would be focused on social and professional issues, which might include social context of computing, professional and ethical responsibility, methods and tools of analysis of issues, risks and liabilities of computer-based systems, intellectual property, privacy and civil liberties, and history of computing.

Additional Studies
Computer science concentrations might be strengthened by the inclusion of one or more of the following topics: human-computer interaction, graphics and visual computing, intelligent systems, information management (including databases), and computational science and numerical methods.

While the above material constitutes general guidelines, students must consider these guidelines in the perspective of their individual goals. In particular, students going on to graduate school will need to review the expectations for mathematics and content such as theory of computation.

Students who will be seeking employment based on their computer science degree must review the current professional expectations for their intended career path. It should be noted that some knowledge not emphasized here, such as knowledge of information management and databases, is a common expectation. Similarly, some industries and professions have very specific expectations for specific programming languages.

Students should explicitly discuss in their rationale essay how each of the above foundation topics are incorporated and demonstrated in their degree program and how the program is designed to meet their goals. It is not necessary that the specific terms used above appear in individual study titles.

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Concentrations in Information Systems
Introduction
What is “information systems?” Clearly, the subject of information systems involves “information” and “systems.” Information is data that has been given meaning through some process. Through its attribute of meaning, it therefore has added value. Systems are the ways in which we develop that information. This would involve the development and use of models as well as the development and use of processes that will help us implement those models.

For the student who wishes to develop a degree program in information systems, definition is the initial challenge and, as the definition develops, the degree program also will take shape.

There are, of course, many ways to approach information systems. Many professionals and educators have tried to identify different approaches by adding adjectives, which has led to terms such as “management information systems”
systems: have agreed upon as essential for a concentration in information depending on student goals and interests. Then, the essential links are presented. From these the foundation is defined, which is important for any degree addresses the aspects of progression and integration. To begin,
The common core of knowledge for information systems 

At Empire State College, the variation among degrees in 
information systems occurs with the identification of the area of study. There are three primary areas of study where a degree in information systems can reside: Business, Management and Economics; Science, Mathematics and Technology; and Interdisciplinary Studies. In order to help the student identify the most appropriate area of study, separate guidelines are 

Students can consider other possibilities than IS for their concentration titles. For example, in the Science, Mathematics and Technology (SMT) area, a student who comes to Empire State College with substantial experience and/or transcript credit in computer technology may want to build on that background to develop a concentration in information technology. A SMT student who wishes to have a more theoretical approach, including extensive study of mathematics and algorithms, may want to pursue a concentration in computer science. In the Business, Management and Economics (BME) area, a student pursuing a concentration in information systems management may consider taking studies such as accounting information systems, human resource information systems, and so on depending on his or her interests and needs.

Common Core of Knowledge for Information Systems

In any degree program, progression and integration are important. Progression is important because one needs to move from a foundation to a deeper level of understanding. Integration exists when links exist among the degree program studies.

The common core of knowledge for information systems addresses the aspects of progression and integration. To begin, the foundation is defined, which is important for any degree program. Then, the essential links are presented. From these essential links, the rest of the degree program will then differ, depending on student goals and interests.

Here are the core areas that the relevant areas of study faculty have agreed upon as essential for a concentration in information systems:

- **Computer Fundamentals:** This area is composed of three sub-areas, all of which need to be addressed – applications, programming and introductory IS concepts. Applications would include word processing, use of spreadsheets, database management and telecommunications. The knowledge of telecommunications should include a basic understanding of networks and the Internet. Programming is introductory programming and can be in any language. Introductory IS concepts would provide an overview of the area, including basic hardware and software aspects, as well as common applications of IS, including, but not restricted to, the use of IS for decision-making support.
- **Business, Management and Economics Fundamentals:** Information systems exist within organizations. In many cases, the organization is involved in business transactions. Therefore, some basic understanding of business and management fundamentals is important. This could be chosen from one or more of the following areas: economics, behavior/management and/or finance/accounting.
- **Quantitative Reasoning:** All students should already have (or develop) skill and confidence with the interpretation of material containing quantitative information and mathematical symbols, and they should have (or develop) an ability to express ideas using mathematical symbols and language. That is, it is important to be able to articulate one’s understanding of mathematics, not just be able to do calculations. The choice of mathematical subject matter for development of quantitative reasoning will depend on the student’s background and interest. Subjects such as algebra, statistics, finite math or technical math are all good choices. In addition, students would greatly benefit from an understanding of basic statistical concepts.
- **Systems Analysis and Design (advanced level):** Key to the understanding of information systems is an understanding of systems analysis and design. This includes an understanding of the systems lifecycle as well as systems and network models.
- **Information Technology (advanced level):** Information technology concerns the hardware aspects of information systems. Many students come to Empire State College with background in information technology. This may include training in networks or the underlying technology of the World Wide Web. It also may include an advanced understanding of programming languages. In this area, currency is important and students without this should regain currency in their contract learning. Contract learning could include study of data communications and networking or advanced programming languages.
- **Information Systems (advanced level):** In addition to systems analysis and design, which was already identified as a core subject, and an understanding of systems and information technology, a student should have an advanced level of understanding in databases, MIS or project management in information systems. Any advanced-level IS study should include some aspect of decision making.
- **Understanding of the Environment in Which One Works:** Information systems always exist in some context and there is wide variability in that context. Often the environment is a business organization, but this is not necessarily the case. Examples of studies that would give a
An IS Degree Within the Area of Study of Business, Management and Economics

In addition to satisfying the general BME guidelines, students wishing to develop an IS degree within the BME registered area are advised to take Business, Management and Economics studies that include IS components or that complement the IS studies in the core area. The following are suggested topic areas (the list below is by no means exhaustive). These studies should be beyond the introductory level and address competencies, learning and knowledge areas such as the following:

Telecommunications Management – A responsibility for the operations and performance of the communication network within the organization. This would include studies such as project management, computer operations and computer security.

Database Management and Administration – A combination of data management and data administration roles and responsibilities, including studies such as relational databases, enterprise data modeling, client interface and management information systems.

Accounting and Financial Management – This involves such responsibilities as dealing with investments in vertical information systems, procurement, operations management and implementation of an information systems’ financial strategy within the organization. Cost accounting is an integral part of this area.

Planning – This would include positioning of IS within other organizational functions to support business strategies and goals and would include studies such as business planning, strategic planning, strategic control systems and systems development.

An IS Degree Within the Area of Study of Science, Mathematics and Technology

The general SMT guidelines are met through the core studies for a degree in IS. One additional area that needs to be included in an information system concentration under SMT would be further study in mathematics. This should be beyond the introductory level and could include areas such as discrete math or advanced quantitative methods in business. The discrete mathematics would cover logic, the concept of complexity, methods of proof and graph theory. The advanced quantitative methods would include topics such as decision making under uncertainty and linear programming.

Beyond the core, students in SMT will most likely have an area they would like to focus on in their additional advanced-level studies. The following are some suggested areas (this list is by no means exhaustive).

Programming – One possible area to investigate further is programming. This does not mean the study of several specific languages. Rather, students are encouraged to consider integrative studies such as: object-oriented programming, theory of programming languages and artificial intelligence.

Networks – A student may be interested in the role of network administrator. For this student, studies such as data communications, voice systems, computer security and network administration would be of interest.

Web Design – The Web has become a very attractive environment. The goal would not be to learn specific packages, but principles that would have a longer life. Suggestions include Web programming, Web design and Web development.

Databases – Databases are at the center of any information system. Any degree program in information systems should include study of databases. Further study of databases would include areas such as data modeling, database management, relational databases, decision support systems, enterprise data modeling, artificial intelligence and expert systems.

Telecommunications – The area of telecommunications is broader than the study of networks. This area would look at the integrated nature of telecommunications, where voice, data and graphics are united.

In developing the concentration studies, it is important that the studies not focus on specific commercial packages, since these narrow approaches will not serve the student’s long-range goals. Specific titles may go out of date, or the manufacturer may change its name or go out of business. It also is important to strike the proper balance between study of general concepts and of specific software tools and packages. While students can and should gain much hands-on experience with software in their studies, at least equal emphasis must be placed on mastery of the concepts and principles. The concepts and principles are the key to successful life-long learning and to mastering the use of new software tools and techniques as they become available. A specific example of this principle would be developing a study Web Design, rather than a study titled, Microsoft Frontpage.

An IS Degree Within the Interdisciplinary Studies Area of Study

Separate guidelines are given for the Interdisciplinary Studies area of study and these are the best source for any student developing a degree within this AOS. However, it is assumed that a student with an Interdisciplinary Studies degree in IS
would still have the common core identified earlier. For the additional studies in the information systems area, one would not expect to see a collection of unrelated technical and business studies in an Interdisciplinary Studies degree. Rather, several of the studies at the advanced level should be studies that integrate viewpoints and applications. An example may be a degree that looks at the technical and implementation aspects of e-commerce.

**Concentration in Mathematics**

Mathematics serves as a creative and organizing force for studies in the sciences, as a problem-solving methodology for studies in technology, and as an abstract study of fundamental structures for its own sake. It has become increasingly important as a tool for the social sciences.

A concentration in mathematics should include the following core areas:

- differential and integral calculus
- linear algebra
- abstract algebra
- real analysis

In addition, there should be in-depth study of a particular area of mathematics. Possibilities include: mathematics education, mathematical modeling, statistics, numerical analysis.

Each program in mathematics should include some application project, based on the area of specialization. For example, a degree program focusing on statistics could include a statistical research project. A student preparing for graduate work in mathematics may want to research the development of the proof for the four-color problem.

The computer has become an essential tool for mathematics. Along with including areas of discrete mathematics in the program, there should be attention paid to the use of the computer as a tool. For example, programming would be included in a study of numerical analysis and the computer would be used for statistical analysis.

**Concentration in Physics**

Physics is the study of matter and energy. Mathematical abstraction characterizes its methodology. Physics is both empirical, based upon controlled observation, and theoretical, in the effort to relate the results of such observations together using abstract conceptual frameworks.

Physics, in fact, requires a dynamic relationship between theory and experiment, between abstract principles and observations of physical behavior. Physics is an active and ongoing attempt to improve both the theories of physics and their match with observation. This is done by purely “theoretical” work: inventing theory, drawing testable predictions from existing principles, comparing existing theories, working out the meaning of newly acquired data for existing theory … the other type of work in physics is “experimental:” designing, creating and carrying out the experiments, advancing the art of making measurements at the limits of accuracy, generating the data for testing the theories of physics.

The major areas of study in physics are mechanics (force and motion), heat, electricity and magnetism, optics (light) and waves, and quantum physics. A physics concentration requires, at the outset, strong working knowledge of algebra, trigonometry and calculus (differential and integral). As early as feasible, the student should complete an introductory study of physics which utilizes calculus and which covers most or all of the major areas listed above.

Students must, in addition, complete intermediate or advanced-level study in all of the same five major areas, as well as laboratory work covering as many of the areas as possible. Further study of calculus through differential equations is essential; additional work in mathematics could include linear algebra, partial differential equations, and complex variables.

Additional study in other areas of physics also is recommended; for example, acoustics and mechanical waves, computational physics, relativity, advanced experimental techniques, atomic physics, solid state physics, nuclear physics, elementary particles, lasers and quantum optics, and fluid dynamics. A final, integrative contract is desirable, possibly including some kind of direct participation in on-going research.

Students should be proficient in use of the computer for enlarging and improving understanding of physics; possible applications of the computer to physics include collecting and analyzing data, complex calculations, exploring the nature of analytical solutions to problems, simulations, and attacking classes of problems that were not solvable in the past.

**Concentration in Technology**

The technological professions require an understanding of scientific and mathematical principles and a detailed knowledge of relevant practices and procedures whereby those principles are applied operationally. The technologist is typically a practical person who is interested in the application of theoretical principles and in the organization of people for the achievement of practical ends. Studies in technology include study of basic sciences with emphasis on application. Depending upon the specific technology and the scientific base of that technology, concentrations in technological fields should include:

- mathematics – for technologies based on physical or engineering sciences, mathematical study should go at least through introductory calculus;
- physical or biological sciences;
- knowledge of computers and computer applications;
hands-on exposure to processes, methods and procedures;
and
• economics and management principles, if appropriate.

SOCIAL THEORY, SOCIAL STRUCTURE
AND CHANGE

Social Theory, Social Structure and Change encompasses a variety of academic disciplines. Students who choose to develop a concentration in this area explore theories, methods and problems addressed by such fields as sociology, political science and anthropology. Students may choose to work within the boundaries of a single academic discipline or may engage in a study which crosses disciplinary lines, such as criminal justice. Concentrations in areas such as women’s studies, communications, ethnic studies and African-American studies which necessarily rely upon a dominantly social (rather than literary, artistic, historical or psychological) perspective also belong in this area of study.

In formulating their degree programs, students should address the following developmental goals which define the aims of study in this area. Concentrations in Social Theory, Social Structure and Change should be planned to develop:

• a broad social perspective. Students should be familiar with institutions, systems of belief, cultural patterns, or political and economic structures of society and how these are interrelated.

• a historical perspective. Students should be able to locate social issues within a historical context, and appreciate the forces which bring about change in values, ideas, customs, institutions, or political and economic systems.

• a comparative perspective. Students should examine the similarities and differences between one set of social rules, institutions, mores, political or economic structures and others of the same or different times, places, cultures, nations and states. Students should be able to address themselves to the causes of such differences or similarities and to evaluate their significance. A comparative perspective also includes understanding of race, class and gender within social groups.

• a theoretical perspective. Students should be able to identify, understand and use general theories and conceptual schemes to define and approach their chosen topics, questions or problems.

• critical ability. Students should learn to analyze, criticize and evaluate key concepts, assumptions and theories of their particular field of study. This requires development of writing abilities and research skills appropriate to their interests.

Students may meet these objectives in many ways; these may include thematic, issue or problem-oriented studies which need not be focused on a single objective, but can respond to a number of the aims described above. In order to assist those faculty who review the programs, students should describe their research and thinking concerning their concentration studies in regard to these objectives in their degree program rationales.

Students who plan disciplinary approaches to fields within this area of study will be expected to be aware of the standard expectations for academic study within that field.