

Overview of the Information Technology Management Concentration & Career Focuses

The Information Technology Management concentration is about using information technology to solve business problems.

This is a creative profession. IT Management focuses on using the capabilities of information technology to solve business problems. Success in the area requires mastery of communication and “people” skills as well as technical material. It requires being comfortable with change and with ambiguity and a commitment to learning. IT Management is a gateway into organizations in every industry, into every functional area of business, into organizations large and small, for profit, not-for-profit and government, everywhere in the world. Specific topics include systems analysis and design--traditional and agile, project management, business process analysis and design, business analytics, management of data communications for business, electronic commerce, database design and implementation, and object-oriented programming for business applications.

Information Technology Management Career Focuses

- **Systems Analysis and Design** personnel bridge the understanding and capabilities of information systems users and information systems developers. They work closely with users to understand and model their business problems. They design new or improved information systems, specifying how systems will perform, and work with developers to ensure that the product solves the users’ business problem. Development may occur within the organization or be outsourced. Analysts and designers may also be involved with creating documentation and training users. The median annual wage of computer systems analysts was \$77,740 in May 2010. Employment of computer systems analysts is expected to grow 22 percent from 2010 to 2020, faster than the average of all occupations.
 - Systems Analysts and Designers are typically found in organizations of all sizes and in consulting/contracting firms and software development firms. They may specialize in certain industries, functional areas of business, software packages (for example: SAP, PeopleSoft, Sales Force, etc.), or application platforms such as web or mobile application development.
 - Typical job titles are Systems Analyst, Business Analyst, and Programmer/Analyst. Overlap with Project Management is common.

- Students are encouraged to seek certification(s) in one or more of the common enterprise IS platforms such as Salesforce, SAP, ServiceNow, or Workday.
- **Project Management** personnel play an essential role in the smooth and successful execution of IT initiatives. Often working in teams, they ensure project alignment with business objectives, secure and track resource use, keep channels of communication open with all important stakeholders, and apply best practices of the project management field to bring Projects in on time and budget and to specification. Interpersonal skills are essential to success in this profession. The entry level certification is the CAPM (Certified Associate in Project Management).
 - Project managers may work within a business unit of a company or within an information systems group. They are also hired by consulting/contracting firms to manage projects with clients.
 - The typical job title is Project Manager, Project Leader, and Project Coordinator. In small and medium-size firms, the IT Manager might be a Project Manager by default.
 - Overlap with Systems Analysis and with Enterprise Information Systems is common.
- **Enterprise Information Systems** personnel work with clients or inside their own organizations to implement ERP and supply chain management systems—typically software packages such as SAP, Oracle, or JDA. ERP implementation specialists and “supply chain programmer/analysts” in this rapidly growing field are paid in the \$70Ks and will likely make more as they move into managerial roles. Enterprise Information Systems personnel typically seek certifications such as Certified Supply Chain Professional (CSCP) and may attend graduate programs in Supply Chain Management.
 - Enterprise Information Systems personnel are typically found in consulting firms that specialize in enterprise software including supply chain, human resources, production planning, and accounting software--often with a specific software package such as SAP. However they may be found in large firms and in the growing number of small and medium-size firms that are implementing ERP systems.
 - Typical job titles are ERP Implementation Specialist, Supply Chain Software Implementation Specialist or Supply Chain Programmer/Analyst.
 - Overlap with Project Management is common.
 - Students are encouraged to seek certification(s) in one or more of the common enterprise IS platforms such as Salesforce, SAP, ServiceNow, or Workday.
- **Information Use, Security, and Privacy** is an emerging and rapidly growing area. Personnel would typically work in the IT management area of a large company or IT forensics practice of a consulting firm helping gather information and making decisions regarding appropriate information use as well as strategic measures to enhance information security and privacy. In this field, requirements are often driven by legislation, regulation, or the need to comply with electronic document discovery (EDD) orders.

- **IT Consulting** careers involve helping clients resolve IT-related issues such as identifying opportunities for improving business processes using IT, evaluating emerging IT, and deploying IT more effectively. Consulting firms provide their clients with access to industry-specific specialists / consultants and subject matter expertise. They range in size from a handful of people to multinational firms employing thousands. Some firms specialize in a particular industry and/or functional area of business such as operations or accounting. Others offer services to firms in a variety of industries in any functional area and actively seek to move into new lines of business.
 - Overlap with all other ITM career paths is common.

Organizations to Join

The MIS Club was formed in spring 2013 to enhance the preparation of ITM students by:

- Bringing *recent graduates who work in the field* to talk about their experience: what kinds of work they do, what they enjoy about it, career paths, and “things they wish they’d been told while they were still in college.”
- Bringing *companies that hire or are interested in hiring graduates* of the program to talk about career opportunities in their companies and what they seek in applicants.
- Getting students in the area *involved in the community* in ways that prepare them for a career while enhancing the quality of the community.

Denning Technology and Management Program

For ITM Concentration students, the Denning Technology and Management Program offers a minor in Computing & Business--*the only one of its kind nationwide*. The selective program helps business students go deeper into the relationship between software infrastructure, business processes, organizational structure, and business strategy in order to effectively manage information technology resources. The admissions process beginning each fall term. Students interested in this minor should contact the Denning Program office in Scheller.

ITM Concentration Electives

- Students must take **6 electives** to satisfy requirements for the ITM concentration.
- At least 3 courses must be chosen from Group A, the “ITM Core”.
- Students may choose remaining electives from Group A “ITM Core” or Group B “Career Focus” or “Other” electives. Recommended Group B choices are indicated for each focus. However, students may choose any electives from Group A or Group B to complete the concentration.
- Students may use free elective hours to take additional courses in the concentration.
- Concentration electives are subject to change. Please go to <http://scheller.gatech.edu> for the most up-to-date list of electives.

Group A: “ITM Core” – Take *at least 3* of these courses for the Information Technology Management concentration, preferably in this order:

Course
MGT 4058: Database Management
MGT 3745: Business Programming
MGT 4052: Systems Analysis & Design
MGT 4450: Project Management

Group B: “Career Focus” Electives – Select electives for Information Technology Management concentration to bring total number of Group A and Group B ITM courses taken up to at least 6.

Courses in *italics* are offered by other areas of the Scheller College or units of Georgia Tech.

Recommended for the Systems Analysis and Design Focus

Students in this career focus are *strongly* advised to take MGT 4052: Systems Analysis and Design.

Course
MGT 3743: Emerging Technologies
MGT 4056: Electronic Commerce
MGT 4057: Business Process Analysis and Design
<i>MGT 4311: Digital Marketing</i>

* *MGT 3743 is typically offered during fall to T&M students, during spring to others*

Recommended for Project Management Focus

Students in this career focus are *strongly* advised to take MGT 4450: Project Management.

Course
<i>MGT 3103: Leading in Changing Business Environments</i>
<i>MGT 3744: Managing products, service and technology development</i>
MGT 4057: Business Process Analysis and Design
<i>MGT 4106: Teams in Organizations</i>
<i>MGT 4193: Servant Leadership Values</i>
MGT 4803: Spreadsheet modeling for decision support (Excel Intensive)

Note: Students in the Leading and Managing Human Capital concentration can take MGT 3103, MGT 4106, and MGT 4803 (Leadership Managing Relations) as Group A electives in that concentration and get a “double concentration” in ITM by taking 3 ITM Group A electives. MGT 4193 is a Group B elective in the Leading and Managing Human Capital concentration.

Recommended for the Enterprise IS Focus

Course
MGT 4050: Business Analytics*
MGT 4057: Business Process Analysis and Design
<i>MGT 4332: Database & CRM Strategy</i>
<i>MGT 4352: Operations Resource Planning</i>
<i>MGT 4360: Global Operations and Supply Chain</i>
<i>MGT 4366: Service Operations Management</i>
MGT 4803: Spreadsheet modeling for decision support (Excel Intensive)

Note: Students in the Operations and Supply Chain Management concentration can take MGT 4366, MGT 4352, and MGT 4360 as Group A electives in that concentration and get a “double concentration” in ITM by taking 3 ITM Group A electives.

* Students particularly interested in Business Analytics should consider taking CS 1171 (Matlab) as a free elective.

Recommended for Information Use, Security, and Privacy Focus

Students in this career focus are *strongly* advised to take MGT 4058: Database Management.

Course
MGT 4050: Business Analytics*
MGT 4053: Business Data Communications
MGT 4056: Electronic Commerce
<i>MGT 4726: Privacy, Technology, Policy, and Law (Swire and Antón)</i>
<i>MGT 4803: Foundations of Internet Policy and Governance (Swire)**</i>
<i>CS 4235: Intro to Information Security (preq. CS1315 or CS1301 or CS 1371- “C” min. grade)</i>
<i>CS 3251: Computer Networking I (preq. CS 2200 – “C” min. grade)</i>

* Students particularly interested in Business Analytics should consider taking CS 1171 (Matlab) as a free elective.

** MGT 4725 Information Security Strategies and Policy (Swire) can be substituted.

Recommended for IT Consulting Focus

Students in this career focus are *strongly* advised to take MGT 4052: Systems Analysis and Design and MGT 4450: Project Management.

Course
<i>MGT 3103: Leading in Changing Business Environments</i>
<i>MGT 3663: Technology Strategy</i>
MGT 3743: Emerging Technologies
MGT 4050: Business Analytics**
MGT 4056: Electronic Commerce
MGT 4057: Business Process Analysis and Design
<i>MGT 4102: Management Consulting</i>
<i>MGT 4670: Entrepreneurship</i>
MGT 4803: Spreadsheet modeling for decision support (Excel Intensive)

* MGT 3743 is typically offered during fall to T&M students, during spring to others

** Students particularly interested in Business Analytics should consider taking CS 1171 (Matlab) as a free elective.

Group B: Other Electives - These electives are in the concentration as Group B electives. However they are not currently part of a career focus. Select electives for the Information Technology Management concentration to bring total number of Group A and Group B ITM courses taken up to at least 6

Course
MGT 3310: Marketing research: Design and Analysis
MGT 4028: Financial reporting and analysis of technology firms
MGT 4041: Auditing and financial control systems
MGT 4067: Financial markets: trading and structure
MGT 4341: Management of healthcare operations

ITM General Plan of Study

This is an example with typical course offerings. Real course offerings may be different. Always check OSCAR for real course offerings.

2nd Year Fall		Hrs
ECON 2105: Macroeconomics		3
ACCT 2101: Accounting 1		3
MGT 2106: Legal Aspects		3
MGT 2250: Mgmt Stats		3
Humanities Elective		3
	TOTAL	15

3rd Year Fall		Hrs
MGT 3062: Financial Mgt (2101 prereq)		3
MGT 3101: Organizational Behavior		3
MGT 3501: Operations Mgt (2251 prereq)		3
MGT 4058: Database		3
Free Elective		3
MGT 3599: Career Development		1
	TOTAL	16

4th Year Fall		Hrs
MGT 4052: Sys Analysis and Design		3
ITM Elective		3
Humanities Elective		3
Free Elective		3
Non-Management Elective		3
	TOTAL	15

1st Year Spring*		Hrs
CS 1315 or CS 1301 (or other Institute approved computer literacy course) See comments on "Which Computer Literacy Course?"		3

2nd Year Spring		Hrs
ECON 2106: Microeconomics		3
ACCT 2102: Accounting 2 (2101 prereq)		3
MGT 2200: Information Technology		3
MGT 2251: Intr to Mgt Sci (2250 prereq)		3
LCC 3403: Technical Communication		3
	TOTAL	15

3rd Year Spring		Hrs
MGT 3300: Marketing		3
MGT 3102: Human Resources		3
MGT 3660: International Business		3
MGT 3745: Business Programming		3
Free Elective		3
	TOTAL	15

4th Year Spring		Hrs
MGT 4195: Strategic Mgt (3062,3101,3300,3501, prereq)		3
MGT 4450: Project Management		3
ITM Elective		3
Social Science Elective		3
Non-Management Elective		4
	TOTAL	16

The Computing and Business Minor

For ITM Concentration students, the Denning Technology and Management Program offers a minor in Computing & Business--*the only one of its kind nationwide*. The selective program helps business students go deeper into the relationship between software infrastructure, business processes, organizational structure, and business strategy in order to effectively manage information technology resources. The admissions process beginning each fall term. Students interested in this minor should contact the Denning Program office in Scheller.

1 st Year Fall	Hrs
CS 2316: Data Manipulation for Science and Industry	3
MGT 3743: Emerging Technologies	3

1 st Year Spring	Hrs
CS 4420: Database System Implementation <i>or</i> CS 4440: Emerging Database Technologies & Applications	3
MGT 4057: Business Process Analysis and Design	3

2 nd Year Fall	Hrs
CS 4005: Next Generation Computing Technologies	3
MGT 4741: Integrative Management Development: Personal Leadership & Effective Teamwork - Capstone Preparation	3

2 nd Year Spring	Hrs
MGT 4742: Integrated Capstone Project	4

The CS courses are:

- CS 2316: Data Manipulation for Science & Industry, 3 credit hours**
 Reading, manipulating, and exporting data for engineering, business, and scientific applications. Covers GUI's, File I/O, basic SQL, and web scraping. Emphasis on software development.
- CS 4420: Database System Implementation, 3 credit hours**
 Study of fundamental software components/algorithms of a database system, including the file manager, query engine, lock manager, and recovery manager. Includes a project component.
- CS 4440: Emerging Database Technologies & Applications, 3 credit hours**
 Current developments including distributed, object-oriented, temporal-spatial, Web-based, mobile, and active database technologies, and data warehousing and mining applications.
- CS 4005: Next Generation Computing Technologies, 3 credit hours**
 Exploration of new paradigms in how content is created, distributed, and consumed, with hands-on demos of next-generation computing technologies.

The Business Analytics Certificate

The objective of the Undergraduate Business Analytics certificate is to prepare students to structure, transform and analyze data to gain insights that will improve business intelligence and managerial decision-making. The certificate provides training in statistics, and in data analysis, management and visualization, as well as in applications of analytics techniques to different business areas.

This certificate is available to all undergraduate students at Georgia Tech. It requires 12 semester hours. The students must earn a grade of "C" or higher in all of the courses to qualify.

The Business Analytics Certificate requires a mathematics-intensive course of study. Students who are interested in this certificate should prepare by taking calculus and linear algebra as well as CS 1301.

Core Requirement (1 course):

- MGT 4050 - Business Analytics (Prerequisite: MGT 2250 Management Statistics or acceptable substitute)

Three (3) courses must be chosen from the following:

- MGT 3310 - Marketing Research: Design & Analysis
- MGT 3745 - Business Programming*
- MGT 4028 - Financial Reporting and Analysis of Technology Firms
- MGT 4057 - Business Process Analysis & Design
- MGT 4058 - Database Management Systems
- MGT 4181 - Business Forecasting**
- MGT 4332 - Database & CRM Strategy
- MGT 4367 - Revenue Analytics***
- MGT 4803 - Privacy, Technology, Policy and Law
- CS 4460 - Information Visualization

Note: Many of these courses require pre-requisites, which will not be waived. Please check OSCAR while planning your schedule.

*Previously taught as MGT 4803 Business Programming. No credit given for both courses.

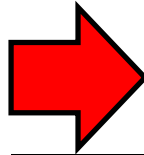
**Previously taught as MGT 4803 Business Forecasting. No credit given for both courses.

***Previously taught as MGT 4803 Revenue Analytics. No credit given for both courses.

Which Computer Literacy Course?

Georgia Tech requires that you take a computer literacy course. Currently, MGT 3745 Business Programming does not meet that requirement so you must choose from alternatives offered by the College of Computing. Business students usually choose either CS 1315 or CS 1301. **If you are interested in ITM, we recommend that you take CS 1301 to provide a firm foundation in algorithmic thinking.**

If you...

<p><i>Are interested in work that requires familiarity with programming or databases, or analytics, or the ITM Concentration, or you are interested in the Denning T&M program</i></p> <p>CS 1301 “Introduction to Computing”</p> 	<p><i>Otherwise...</i></p> <p>CS 1315 “Introduction to Media and Computation”</p>
<p>Course objectives:</p> <ul style="list-style-type: none"> • To understand the basic concepts of computer programming in a high-level language. • To be able to use and combine control flow constructs to form useful programs. • To understand and become familiar with a number of simple data structures. • To understand the process and skills necessary to effectively deal with problem solving in relation to writing programs. • To be able to test and debug programs. • To understand and employ functions and modularity. • Through labs become comfortable with common software packages in use today. <p>If you are particularly interested in developing your programming skills <i>after</i> taking CS 1301, you should consider:</p> <ul style="list-style-type: none"> • CS 1331 – Introduction to Object-Oriented Programming • CS 1332 - Data Structures and Algorithms • CS 2316 - Data Input & Manipulation for Science & Industry 	<p>Course objectives:</p> <ul style="list-style-type: none"> • Students will be able to read, understand, modify, and assemble from pieces programs that achieve useful communication tasks: Image manipulation, sound synthesis and editing, text (e.g., HTML) creation and manipulation, and digital video effects. • We will always give you examples to use when we ask you to program • Students will learn what computer science is about, especially data representations, algorithms, encodings, forms of programming. • Students will learn useful computing skills, including database concepts. <p>If, after completing CS 1315, you decide that you are interested in further developing your skills in algorithmic thinking and programming, you should consider:</p> <ul style="list-style-type: none"> • CS 1301 – Introduction to Computing.

If you intend to focus on Information Use, Security, and Privacy and would like to take CS 4235 (Intro to Information Security), you must earn at least a “C” in CS 1301, CS 1315, or CS 1371 (Computing for Engineers)

Summary of ITM Group A and Group B Electives

- Students must take **6 electives** to satisfy requirements for the ITM concentration.
- **Either choose 3 from Group A and 3 from Group B, or 4 from Group A and 2 from Group B.**
- Students may use free elective hours to take additional courses in the concentration.
- Concentration electives may change. Please see <http://scheller.gatech.edu> for a current list.

Group A: ITM “Core” – Take **at least 3** of these for the Information Technology Management concentration, *preferably in this order*

Course (prerequisites)
MGT 4058: Database Management (MGT 2200)
MGT 3745: Business Programming (MGT 2200)
MGT 4052: Systems Analysis & Design (MGT 2200)
MGT 4450: Project Management

Group B: Career Focus and Other Electives – Select electives for the Information Technology Management concentration to bring total number of Group A and Group B ITM courses taken up to at least 6.

Courses in **bold** are ITM area Group B electives. Courses in *italics* are offered by other areas of the Scheller College or units of Georgia Tech.

Courses in **red** are “new” electives added after spring 2015. Prerequisites are in (parentheses).

Course (prerequisites)
<i>MGT 3103: Leading in Changing Business Environments(MGT 3101)</i>
<i>MGT 3310: Marketing research (MGT 3300)</i>
<i>MGT 3663: Technology Strategy (npr)</i>
MGT 3743: Emerging Technologies (npr)
<i>MGT 3744: Managing products, service and technology development (npr)</i>
<i>MGT 4028: Financial reporting and analysis of technology firms (MGT 3000)</i>
<i>MGT 4041: Auditing and financial control systems (MGT 3000)</i>
MGT 4050: Business Analytics (MGT 2200)
MGT 4053: Business Data Communications (MGT 2200)
MGT 4056: Electronic Commerce (npr)
MGT 4057: Business Process Analysis and Design (MGT 2200)
<i>MGT 4067: Financial markets: trading and structure (MGT 3076)</i>
<i>MGT 4102: Management Consulting (MGT 3101 or MGT 3150)</i>
<i>MGT 4106: Teams in Organizations (MGT 3101 or MGT 3150)</i>
<i>MGT 4193: Servant Leadership Values (npr)</i>
<i>MGT 4311: Digital Marketing (MGT 3300)</i>
<i>MGT 4341: Management of healthcare operations (3rd, 4th yrs only)</i>
<i>MGT 4352: Operations Resource Planning (MGT 3501)</i>
<i>MGT 4360: Global Operations and Supply Chain (MGT 3501)</i>
<i>MGT 4366: Service Operations Management (MGT 3501)</i>
<i>MGT 4670: Entrepreneurship (MGT 3501)</i>
<i>MGT 4803: Foundations of Internet Policy and Governance – Swire (npr)*</i>
<i>MGT 4726: Privacy, Technology, Policy, and Law - Swire and Antón (npr)</i>
MGT 4803: Spreadsheet modeling for decision support – Excel intensive (MGT 2200)
<i>CS 3251: Computer Networking I (CS 2200 – “C” min. grade)</i>
<i>CS 4235: Intro to Information Security (CS1315 or CS1301 or CS 1371- “C” min. grade)</i>

** MGT 4725 Information Security Strategies and Policy (Swire) can be substituted.