BACHELOR OF SCIENCE WITH A MAJOR IN INFORMATION SYSTEMS (STEM)

OVERVIEW

The bachelor of science with a major in information systems program focuses on the theory, organization, and process of information collection, transmission, and utilization in traditional and electronic forms. The program includes instruction in information classification and organization; information storage and processing; transmission, transfer, and signaling; communications and networking; systems planning and design; human interfacing and use analysis; database development; information policy analysis; and related aspects of hardware, software, economics, social factors, and capacity.

Students in the BS in information systems program learn to:

- Analyze and apply knowledge of information systems technology (IST) body of knowledge to meet specific business requirement, specifically for the following:
  - System analysis and design (methodologies, techniques, and tools, including OO)
  - Database management, data warehousing
  - Programming
  - Web development
  - Web analytics
  - Strategic development in IST
- Communicate clearly and effectively in writing and oral presentations
- Weigh the ethics and impact on society as a whole when making decisions
- Think critically, analyze the facts, and make intelligent choices
- Work effectively in a team, both as a member and a team leader, by actively participating in team activities, completing assigned tasks on time, helping other team members, and working towards a common goal

This is a STEM designated program.

REQUIREMENTS

The following requirements must be fulfilled: a minimum of 120 credits, including University General Education (http://bulletin.gwu.edu/university-regulations/general-education/), pre-business, business core, and information systems major courses.

Students pursuing information systems as a second major should reference the information systems as a second major (p. 2) requirements section at the bottom of this page.

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<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>UW 1020</td>
<td>University Writing</td>
<td>6 credits</td>
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<td>6 credits taken in at least two writing in the disciplines (WID) courses in two or more separate semesters.</td>
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<td>One critical analysis in the humanities course.</td>
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<td>One scientific reasoning with laboratory course.</td>
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<td>One course with an approved oral communication component.</td>
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<tr>
<th>Code</th>
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<th>Credits</th>
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<tbody>
<tr>
<td>BADM 1001 &amp; BADM 1002</td>
<td>Business Leader Foundations I and Business Leader Foundations II</td>
<td>3</td>
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<tr>
<td>or BADM 1003</td>
<td>Business Leader Foundations for Transfer Students</td>
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<tr>
<td>BADM 3001</td>
<td>Business Leader Career Strategy</td>
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<td>BADM 4001</td>
<td>Business Leader Launch</td>
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<tr>
<td>STAT 1051</td>
<td>Introduction to Business and Economic Statistics</td>
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<tr>
<td>or STAT 1053</td>
<td>Introduction to Statistics in Social Science</td>
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<tr>
<td>or STAT 1111</td>
<td>Business and Economic Statistics I</td>
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<tr>
<td>or DNSC 1001</td>
<td>Business Analytics I: Statistics for Descriptive and Predictive Analytics</td>
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<tr>
<td>or APSC 3115</td>
<td>Engineering Analysis III</td>
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<tr>
<td>STAT 2112</td>
<td>Business and Economic Statistics II</td>
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<tr>
<td>or STAT 2118</td>
<td>Regression Analysis</td>
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<tr>
<td>or STAT 2123</td>
<td>Introduction to Econometrics</td>
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<tr>
<td>or DNSC 2001</td>
<td>Business Analytics II: Predictive and Prescriptive Analytics</td>
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<tr>
<td>or ECON 2123</td>
<td>Introduction to Econometrics</td>
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<tr>
<td>ECON 1011</td>
<td>Principles of Economics I</td>
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<tr>
<td>ECON 1012</td>
<td>Principles of Economics II</td>
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One of the following sequences in mathematics:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
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<tbody>
<tr>
<td>MATH 1231 &amp; MATH 1232</td>
<td>Single-Variable Calculus I and Single-Variable Calculus II</td>
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</tbody>
</table>
or MATH 1051 & MATH 1252

Finite Mathematics for the Social and Management Sciences and Calculus for the Social and Management Sciences

or MATH 1051 & MATH 1231

Finite Mathematics for the Social and Management Sciences and Single-Variable Calculus I

or MATH 1220 & MATH 1221 & MATH 1051

Calculus with Precalculus I and Calculus with Precalculus II and Finite Mathematics for the Social and Management Sciences

or MATH 1220 & MATH 1221 & MATH 1232

Calculus with Precalculus I and Calculus with Precalculus II and Single-Variable Calculus II

Business core courses

BADM 2301 Management Information Systems Technology

Four courses selected from the following:

ACCY 2001 Introduction to Financial Accounting

ACCY 2002 Introductory Managerial Accounting

BADM 2001 Markets and Politics

or BADM 2001W Markets and Politics

BADM 3103 Human Capital in Organizations

BADM 3401 Contemporary Marketing Management

or BADM 3401W Contemporary Marketing Management

BADM 3501 Financial Management and Markets

BADM 3601 Operations Management

BADM 4101 Business Ethics and the Legal Environment

or BADM 4101W Business Ethics and the Legal Environment

BADM 4801 Strategy Formulation and Implementation

IBUS 3001 Introduction to International Business

Information systems major courses

ISTM 3119 Introduction to Programming

ISTM 4120 Business Systems Development

ISTM 4121 Database Principles and Applications

ISTM 4205 Web Applications Development

ISTM 4206 Foundations of Information Systems Security and Ethics

ISTM 4209 Foundations of Web Analytics

ISTM 4210 Information Systems Capstone

Three courses selected from the following:

ISTM 4213 Foundations of Cloud Applications

ISTM 4214 Foundations of Artificial Intelligence

ISTM 4215 Human-Computer Interaction

ISTM 4216 Mobile Application Development

ISTM 4217 Internet of Things Management

ISTM 4223 Innovation Ventures

ISTM 4233 Emerging Technologies

ISTM 4900 Special Topics

Electives

In general, students complete 40 credits in elective courses to reach the 120 credits required for the degree. 18 of those credits must be taken outside of GWSB. Elective courses may be applied to a GWSB concentration, a non-GWSB minor, or a GWSB or non-GWSB second major. See GWSB Undergraduate Regulations in this Bulletin for information regarding course restrictions.

1 Courses must be taken after completion of UW 1020 and in separate semesters.

2 See Undergraduate Education at GW (http://bulletin.gwu.edu/university-regulations/general-education/) for additional information regarding approved courses for this requirement.

3 First-year students take BADM 1001 and BADM 1002; transfer students take BADM 1003.

INFORMATION SYSTEMS AS A SECOND MAJOR

Students who are pursuing information systems as a second major are required to complete the following courses. Non-GWSB students may declare information systems as a second major directly with their home school advisor; a signature from a GWSB academic advisor is not required.

<table>
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<tr>
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<tbody>
<tr>
<td>ISTM 3119</td>
<td>Introduction to Programming</td>
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<tr>
<td>ISTM 4120</td>
<td>Business Systems Development</td>
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<tr>
<td>ISTM 4121</td>
<td>Database Principles and Applications</td>
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</tbody>
</table>
ISTM 4205  Web Applications Development
ISTM 4206  Foundations of Information Systems
           Security and Ethics
ISTM 4209  Foundations of Web Analytics
ISTM 4210  Information Systems Capstone

Three courses selected from the following:

ISTM 4213  Foundations of Cloud Applications
ISTM 4214  Foundations of Artificial Intelligence
ISTM 4215  Human-Computer Interaction
ISTM 4216  Mobile Application Development
ISTM 4217  Internet of Things Management
ISTM 4223  Innovation Ventures
ISTM 4233  Emerging Technologies
ISTM 4900  Special Topics

COMBINED PROGRAMS

Combined Program

• Dual Bachelor of Arts or Bachelor of Science and
  GW School of Business Master’s Degree (http://bulletin.gwu.edu/business/dual-ba-bs-and-business-masters/)