Department of Computer Science

Please note: Not accepting new students. This program is currently under review.

Mission

The Department of Computer Science prepares students to develop and support information systems. The degree programs train them in systems analysis and design, application development, and in the use of databases to enter both the business side and the technical side of today’s electronic communication and system administration.

Vision

Today’s world runs on information, and the computer-based information system is the tool that gathers, stores, organizes and integrates data so that it becomes useful information. Without information systems, most modern organizations would be hard pressed to meet their strategic, tactical and operational goals. Students gain practical experience by developing computer programs and applications, and by building computers, networks, and communication systems. The Bachelor of Science Degree in Computer Information Systems (CIS) and the Associate Science (A.S.) degree in Computer Networking prepare students to meet these challenges of a dynamic world.

Program Goals

The goal of both degree programs is to prepare students for careers in fields that support computer-based systems of communication. Graduates may enter such disciplines as Telecommunications Management, Network Management, Systems Analysis, High Technology Marketing and Sales, and Information Systems Design. While the A.S. program is centered on gaining expertise with hardware, software and network design, the B.S. program combines coursework in programming, database management, data communications, and system administration with substantial coursework in business.

Affording students hands-on experience is central to the educational philosophy followed in the Department of Computer Science. The Department maintains two computer science laboratories and shares a workshop with NHU’s science programs. Upon completion of the program NHU computer science students should effectively demonstrate the following:

1. business and computer science communication skills, including written, oral and presentation;
2. teamwork and leadership skills in a multicultural setting;
3. ability to integrate knowledge across the computer disciplines to offer solutions to problems commonly encountered in business; and
4. ability to solve computer-related problems.

Computer Proficiency Examination

The National Hispanic University has implemented a Computer Proficiency Assessment Program (SAM 2007 – Skills Assessment Manager 2007) that measures a student’s proficiency in computer application skills (Word Processing, Presentation Development, Spreadsheet and Database). The assessment considers four individual examinations; each measuring the skills learned in the CS 100 and CS 103 courses. These examinations are required of all new students. The following are the keys features of the examinations.

1. The examination will be given in the computer laboratory, library or CCS. A client/server environment will accommodate the testing process.
2. The examination will be given during the CS 100 and CS 103 classes. The SAM 2007 assessment consists of the following 4 examinations:
   - CS 100 midterm exam
   - CS 100 final exam
   - CS 103 midterm exam
   - CS 103 final exam
3. A minimum score of 70% must be achieved for each examination.
4. All students’ records will be stored on the SAM 2007 server database.
5. If students want to challenge CS 100 and/or CS 103 course(s), they must do so separately. See the catalog section “Credit by Examination” for details.
6. Even if students successfully challenge the CS 100 and/or CS 103 course(s), they still must pay the tuition for the credited units.

Associate of Science Degree in Computer Networking

Note: Not accepting new students. This program is currently under review.
The curriculum in the Associate of Science Degree in Computer Networking is designed with a three-fold purpose:

- To prepare the student to continue work toward a Bachelor’s degree in computer science or related field.
- To provide the student with the knowledge and skills to enter the workforce.

**Requirements**

In order to meet the academic requirements for graduation with an Associate of Science Degree in Computer Networking from The National Hispanic University, the student must:

- Complete a minimum of 75 units of college credit, including:
  - A minimum of 34 units of General Education to satisfy the GE Breadth requirement
  - 10 units of NHU Core Courses
  - All required Computer Science Courses (or their equivalent), 31 units
- Attain an overall grade point average of “C” (2.0) or higher.

**General Plan**

<table>
<thead>
<tr>
<th>Course Type</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>NHU Core Courses</td>
<td>10</td>
</tr>
<tr>
<td>General Education Courses</td>
<td>34</td>
</tr>
<tr>
<td>Computer Science Courses</td>
<td>31</td>
</tr>
<tr>
<td>Total</td>
<td>75</td>
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</table>

**NHU Core Courses**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 100</td>
<td>Introduction to Computers</td>
<td>3</td>
</tr>
<tr>
<td>CS 103</td>
<td>Advanced Computer Applications</td>
<td>3</td>
</tr>
<tr>
<td>SPA 100</td>
<td>Elementary Spanish I</td>
<td>3</td>
</tr>
<tr>
<td>SPA 230</td>
<td>Spanish for the Spanish Speaker</td>
<td>3</td>
</tr>
<tr>
<td>INF 100</td>
<td>Information Competency</td>
<td>1</td>
</tr>
</tbody>
</table>

**General Education Courses**

**Area A: Communication in the English Language and Critical Thinking (9 units)**

**Oral communication**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPC 100</td>
<td>Public Speaking</td>
<td>3</td>
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</tbody>
</table>

**Written Communication**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENG 100</td>
<td>English Composition and Reading</td>
<td>3</td>
</tr>
</tbody>
</table>

**Critical Thinking**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENG 201</td>
<td>Critical Thinking, Reading, and Writing Across the Curriculum</td>
<td>3</td>
</tr>
<tr>
<td>or</td>
<td>PHL 200</td>
<td>3</td>
</tr>
<tr>
<td>or</td>
<td>PHL 100</td>
<td>3</td>
</tr>
</tbody>
</table>

**Area B: Physical Universe and its Life Forms (13 units)**

**Life Science**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIO 100</td>
<td>General Biology</td>
<td>4</td>
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</table>

**Physical Science**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
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<tbody>
<tr>
<td>CHE 130</td>
<td>Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>PHY 120</td>
<td>Physics</td>
<td>3</td>
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**Mathematics**

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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAT 100</td>
<td>College Algebra</td>
<td>3</td>
</tr>
</tbody>
</table>

**Area C: Arts, Literature, Philosophy, and Foreign Languages (3 units)**

**Art**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>ART 100</td>
<td>Art Appreciation</td>
<td>3</td>
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<tr>
<td>or</td>
<td>PHL 100</td>
<td>3</td>
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**Letters**

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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
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</thead>
<tbody>
<tr>
<td>PHL 100</td>
<td>Introduction to Philosophy</td>
<td>3</td>
</tr>
<tr>
<td>or</td>
<td>ENG 250</td>
<td>3</td>
</tr>
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</table>

**Humanities**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENG 250</td>
<td>Contemporary Multicultural Literature</td>
<td>3</td>
</tr>
</tbody>
</table>
Area D: Social, Political and Economic Institutions and Behavior (6 units)

*Comparative Systems*
- HIS 100 3 units
  U.S. History I

*Social Issues*
- HIS 201 3 units
  U.S. History II

Area E: Lifelong Understanding and Self Development (3 units)

- ANT 125 3 units
  Human Understanding and Development
  *or*
- UNI 100 3 units
  First-Year Seminar

Computer Science Courses

- CS 107 3 units
  Personal Computer Systems
- CS 110 3 units
  Data Communications and Networking
- CS 130 3 units
  Network Operating Systems
- CS 212 3 units
  Internet Protocols
- CS 220 4 units
  Networking Basics
- CS 221 4 units
  IOS Configuration
- CS 222 4 units
  Routing and Switching
- CS 223 4 units
  Network Design (WANs)

Bachelor of Science in Computer Information Systems

Note: Not accepting new students. This program is currently under review.

In order to meet the academic requirements for graduation with a Bachelor of Science in Computer Information Systems, students must:

- Complete a minimum of 128 units of college credit;
- Satisfy NHU General Education Breadth requirements as described in this catalog;
- Meet requirements for NHU Core Courses;
- Meet requirements for the major as described in this catalog;
- Meet the University’s residency requirement which is the completion of 30 units at NHU;
- Complete a minimum of 45 upper division units;
- Complete a minimum of 15 upper division units in the major;
- Attain an overall grade point average of “C” (2.0) or higher with a “C” (2.0) or higher in all units attempted in the major.

In addition, students must:

- File a formal application for a graduation with the Department Chair.
- Ensure that all financial obligations to the University have been met, including payment of outstanding fee.

General Plan

<table>
<thead>
<tr>
<th>Category</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>NHU Core Courses</td>
<td>10</td>
</tr>
<tr>
<td>General Education Courses</td>
<td>49</td>
</tr>
</tbody>
</table>
  - Lower Division               | 40    |
  - Upper Division               | 9     |
| C.I.S. Major Courses (69 units)|       |
  - Business Lower Division      | 9     |
  - Business Upper Division      | 9     |
  - Computer Science Lower Division | 24   |
  - Computer Science Upper Division | 27   |
| Total                           | 128   |

NHU Core Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>CS 100</td>
<td>3</td>
</tr>
</tbody>
</table>
  Introduction to Computers
| CS 103   | 3     |
  Advanced Computer Applications
| SPA 100  | 3     |
  Elementary Spanish I
  *or*
General Education Courses

Lower Division Requirements (40 units)

Area A: Communication in the English Language and Critical Thinking (9 units)

Oral communication
- SPC 100 3 units
  Public Speaking

Written Communication
- ENG 100 3 units
  English Composition and Reading

Critical Thinking
- ENG 201 3 units
  Critical Thinking, Reading, and Writing Across the Curriculum
  or
- PHL 200 3 units
  Introduction to Logic

Area B: Physical Universe and its Life Forms (10 units)

Physical Science
- GEO 200 3 units
  Physical Geography

Life Science
- BIO 100 4 units
  General Biology

Mathematics
- MAT 100 3 units
  College Algebra

Area C: Arts, Literature, Philosophy, and Foreign Languages (9 units)

Arts
- ART 100 3 units
  Art Appreciation
  or

Humanities
- ENG 250 3 units
  Contemporary Multicultural Literature
  or

Letters
- PHL 100 3 units
  Introduction to Philosophy

Area D: Social, Political and Economic Institutions and Behavior (9 units)

Human Behavior
- ANT 100 3 units
  Introduction to Anthropology
  or
- PSY 100 3 units
  Introduction to Psychology

Comparative Systems
- HIS 100 3 units
  U.S. History I

Social Issues
- HIS 201 3 units
  U.S. History II

Area E: Lifelong Understanding and Self Development (3 units)

Human Behavior
- ANT 125 3 units
  Human Understanding and Development
  or
- UNI 100 3 units
  First-Year Seminar

Upper Division Requirements (9 units)

Area I: Advanced Written Composition (3 units)
- ENG 300 3 units
  Advanced Writing Skills

Area II Human Expression Across the Globe (3 units)
- ENG 301 3 units
  World Literature
  or
- PHL 300 3 units
  Personal, Professional, and Social Ethics

Area III: World Issues and Problems (3 units)
- HIS 414 3 units
  World History I
  or
- SPC 300 3 units
  Argumentation and Advocacy of World Issues
## Computer Information Systems Major Courses

### Business Lower Division Requirements (9 units)
- **BUS 101** 3 units
  Introduction to Business
- **BUS 240** 3 units
  General Accounting Principles
- **BUS 260** 3 units
  Business Statistics

### Business Upper Division Requirements (9 units)
- **BUS 325** 3 units
  Business Communication
- **BUS 351** 3 units
  Business Ethics
- **BUS 368** 3 units
  Project Management

### Computer Science Lower Division Requirements (24 units)
- **CS 101** 3 units
  Introduction to Programming
- **CS 105** 3 units
  Object-Oriented Programming I
- **CS 106** 3 units
  Object-Oriented Programming II
- **CS 107** 3 units
  Personal Computer Systems
- **CS 110** 3 units
  Data Communications and Networking
- **CS130** 3 units
  Network Operating Systems
- **CS 150** 3 units
  Elementary Algorithms and Data Structures
- **CS 212** 3 units
  Internet Protocols

### Computer Science Upper Division Requirements (27 units)
- **CS 300** 3 units
  Introduction to Internet/Telecommunications
- **CS 322** 3 units
  Client Administration
- **CS 330** 3 units
  Database Management Systems
- **CS 332** 3 units
  Server Administration
- **CS 340** 3 units
  Advanced Networking
- **CS 360** 3 units
  Object-Oriented Analysis and Design
- **CS 380** 3 units
  Graphical Programming
- **CS 460** 3 units
  Management of Information Systems
- **CS 490 A** 3 units
  Computer Information Systems Internship
- **OR**
  **CS 490B** 3 units
  Computer Information Systems Senior Project

*These courses may be substituted for upper division courses offered in a 4-year institution such as: Database Management Systems, Networked Databases, Web Design and Programming, Middleware, Multimedia, IT Security, e-Commerce, Computer Graphics and Visualization, High-Performance Computer Architecture, Artificial Intelligence, Applied Logic, Relational Database Systems, Information Resource Management and Data Administration, Database Design and Administration, Visual Programming, Macroeconomics, Business Statistics, and other topics with prior approval from the department Chair.*