## COMPUTER INFORMATION SYSTEMS

### AAS DEGREE

The **Game Animation and Design degree** prepares students to create animations, design and develop video games, and incorporate art assets using game industry tools.

**Field of Study Code: CIS.AAS.GAMEA**

<table>
<thead>
<tr>
<th>Program Requirements</th>
<th>Credits</th>
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<tbody>
<tr>
<td>Cis 1199 Introduction to Game Industry</td>
<td>3</td>
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<tr>
<td>Cis 1200 Game Design</td>
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<td>Cis 1201 Advanced Game Design</td>
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<tr>
<td>Cis 1212 Game Asset Creation and File Optimization</td>
<td>3</td>
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<tr>
<td>Cis 1400 Programming Logic and Technique</td>
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<tr>
<td>Cis 2212 3D Game Development</td>
<td>3</td>
</tr>
<tr>
<td>Cis 2332 Game Animation</td>
<td>3</td>
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<tr>
<td>OR Mptv 2332 Game Animation</td>
<td>3</td>
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<tr>
<td>Cis 2290 Game Development Capstone Project</td>
<td>4</td>
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<tr>
<td>Mptv 1311 Introduction to Animation</td>
<td>3</td>
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<tr>
<td>Mptv 1313 History of Animation</td>
<td>3</td>
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<tr>
<td>Mptv 1320 Experimental Animation</td>
<td>3</td>
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<tr>
<td>Mptv 1324 Motion Graphics and Special Effects I</td>
<td>3</td>
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<tr>
<td>Mptv 2331 3-D Animation I</td>
<td>3</td>
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<tr>
<td>Art 1101 Drawing I</td>
<td>3</td>
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<tr>
<td>Physi 1100 Physics</td>
<td>4</td>
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<tr>
<td>Engli 1101 English Composition I</td>
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<tr>
<td>OR Engli 1105 Workplace Writing</td>
<td>3</td>
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<tr>
<td>OR Spec 1100 Fundamentals of Speech Communication</td>
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<tr>
<td>OR Spec 1120 Small Group Communication</td>
<td>3</td>
</tr>
<tr>
<td>OR Spec 1150 Introduction to Business Communication</td>
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</tbody>
</table>

**General Education**

Select one course from each category: Social and Behavioral Sciences, Mathematics (1000 level or above)

**Total Credits Required**

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### AAS DEGREE

The **Game Design and Development degree** prepares students to design and develop video games through application of game design elements and development tools used in the game industry.

**Field of Study Code: CIS.AAS.GAMED**

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</table>

**Electives**

Select eight credits from any 1000- or 2000-level courses. (In addition to the courses listed above.)

**General Education**

Select one course from each category: Social and Behavioral Sciences, Mathematics (1000 level or above)

**Total Credits Required**

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AAS DEGREE

The Game Programming and Development degree prepares students to develop video games using programming languages and development tools used in the game industry.

Field of Study Code: CIS.AAS.GAMEP

Program Requirements........................................58-60
Cis 1199 Introduction to Game Industry ..................3
Cis 1200 Game Design ...........................................3
Cis 1211 2D Game Development ..............................3
Cis 1212 Game Asset Creation and File Optimization ...3
Cis 1400 Programming Logic and Technique ................4
Cis 2211 2D Game Scripting ...................................3
Cis 2212 3D Game Development ..............................3
Cis 2220 Game Programming Using C++ .....................3
Cis 2420 Microprocessor Assembly Language ............4
Cis 2541 C++ Language Programming ......................4
Cis 2542 Advanced C++ with Data Structure Applications ..........4
Cis 2770 Introduction to System Analysis and Design ..........................................................3
Cis 2290 Game Development Capstone Project ..........4
Physi 1100 Physics .................................................4
Math 1115 Technical Mathematics I ........................3
OR
Math 1428 College Algebra with Applications ..........3
OR
Math 1431 Precalculus I .........................................5
OR
Math 1432 Precalculus II: Trigonometry ....................3
Engli 1101 English Composition I ..........................3
OR
Engli 1105 Workplace Writing ................................3
Spec 1100 Fundamentals of Speech Communication ......3
OR
Spec 1120 Small Group Communication ....................3
OR
Spec 1150 Introduction to Business Communication ......3

General Education ......................................................6
Select one course from each category: Social and Behavioral Sciences, Humanities and Fine Arts

Total Credits Required...........................................64 to 66

AAS DEGREE

The Software Development degree prepares students to work in the field of computer technology. This degree requires 64 credits in program requirements, program electives, electives and general education in the courses listed below.

Field of Study Code: CIS.AAS.SOFTW

Program Requirements.............................................33
Cis 1150 Understanding Computers, Information and Systems .................................................3
Cis 1160 Windows Command Line ..........................2
Cis 1180 Introduction to Networking ..........................3
Cis 1230 Microcomputer Database Application ........3
Cis 1310 HTML and CSS ........................................3
Cis 1400 Programming Logic and Technique .............4
Cis 1450 Introduction to Linux/Unix Operating Systems ......................................................3
Cis 2330 Introduction to XML ..................................3
Cis 2770 Introduction to System Analysis & Design ....3
Cis 2790 Systems Analyst Simulation ......................3
Engli 1105 Workplace Writing .................................3

Emphasis Courses ....................................................16
Select any two course sequences for a minimum of 16 hours.

C++ Emphasis ..........................................................8
This emphasis focuses on the creation, maintenance, and support of software applications in the C++ environment.
Cis 2541 C++ Language Programming ......................4
Cis 2542 Advanced C++ with Data Structure Applications .....................................................4

Java Emphasis ..........................................................8
This emphasis focuses on the creation, maintenance, and support of software applications in the Java environment.
Cis 2571 Introduction to Java ....................................4
Cis 2572 Collections in Java ......................................4

Visual Basics Emphasis ..............................................8
This emphasis focuses on the creation, maintenance, and support of software applications in the Visual Basics environment.
Cis 1510 Graphical User Interface Programming ....4
Cis 2510 Advanced Graphical User Interface Programming ...................................................4

.NET Emphasis ..........................................................12
This emphasis focuses on the creation, maintenance, and support of software applications in the .NET environment.
Cis 1510 Graphical User Interface Programming ....4
Cis 2350 Introduction to ASP.NET ............................4
Cis 2561 Introduction to C# .NET .............................4
CERTIFICATE

The **Business Productivity Software certificate** requires 19 credits in the courses listed below.

**Field of Study Code: CIS.CER.BUSPRO**

**Total Credits Required** ........................................................ 19
Cis 1130 Windows Basics ......................................................... 2
Cis 1150 Understanding Computers, Information and Systems ................. 3
Cis 1205 Office Suite Software Integration .................................. 3
Cis 1221 Data Analysis with Spreadsheets .................................. 3
Cis 1230 Microcomputer Database Application ............................. 3
Cis 1240 Presentation Graphics – Windows Based .......................... 2
Cis 1300 Web Design Software .................................................. 3

CERTIFICATE

The **C++ Language Proficiency certificate** requires 15 credits in the courses listed below.

**Field of Study Code: CIS.CER.CPLUS**

**Total Credits Required** ........................................................ 15
Cis 1150 Understanding Computers, Information and Systems ................. 3
Cis 1400 Programming Logic and Technique ................................. 4
Cis 2541 C++ Language Programming .......................................... 4
Cis 2542 Advanced C++ with Data Structure Applications .................. 4

CERTIFICATE

The **Database Proficiency certificate** requires proficiency in using Windows and 10 credits in the courses listed below.

**Field of Study Code: CIS.CER.DBPRO**

**Total Credits Required** ........................................................ 10
Cis 1150 Understanding Computers, Information and Systems ................. 3
Cis 1400 Programming Logic and Technique ................................. 4
Cis 2541 C++ Language Programming .......................................... 4
Cis 2542 Advanced C++ with Data Structure Applications .................. 4

AAS DEGREE

The **Application and Technical Support Specialist degree** prepares students to provide help, support, and technical advice to computer users.

**Field of Study Code: CIS.AAS.TECH**

**Program Requirements** ......................................................... 36
Cis 1150 Understanding Computers, Information and Systems ................. 3
Cis 1160 Windows Command Line ................................................ 3
Cis 1180 Introduction to Networking ............................................. 3
OR
Cis 1116 Network Essentials ...................................................... 3
Cis 1205 Office Suite Software Integration .................................. 3
Cis 1310 HTML and CSS ........................................................... 3
Cis 1400 Programming Logic and Technique ................................. 3
Cis 1450 Introduction to Linux/Unix Operating Systems ...................... 4
Cis 1610 Windows Client OS ...................................................... 3
Cis 2770 Introduction to System Analysis and Design ....................... 3
Busin 1111 Customer Service ................................................... 3
Cit 1100 IT Fundamentals ......................................................... 2
Enghi 1105 Workplace Writing .................................................. 3

**Program Electives** ................................................................... 13
Select 13 credits from any CIS courses except CIS 1110. (In addition to the courses listed above.)

**General Education** .................................................................. 15
(In addition to the courses listed above.)

**Total Credits Required** .......................................................... 64
CERTIFICATE

The **Enterprise Database Proficiency certificate** requires 13 credits in the courses listed below.

**Field of Study Code: CIS.CER.ENTDB**

Total Credits Required ........................................................ 13  
Cis  1400  Programming Logic and Technique.........................4  
Cis  2720  Structured Query Language (SQL I).......................3  
Cis  2725  Enterprise SQL Application ................................3  
OR  
Cis  2730  Enterprise Database Development..........................3  
Cis  2770  Introduction to System Analysis & Design ...............3

CERTIFICATE

The **Game Programming and Development certificate** prepares the student to program and develop video games using programming languages and development tools used in the game industry.

**Field of Study Code: CIS.CER.GAMEP**

Total Credits Required ........................................................ 34  
Cis  1199  Introduction to Game Industry ............................3  
Cis  1200  Game Design .....................................................3  
Cis  1211  2D Game Development .........................................3  
Cis  1400  Programming Logic and Technique ........................4  
Cis  2211  2D Game Scripting .............................................3  
Cis  2212  3D Game Development .........................................3  
Cis  2420  Microprocessor Assembly Language .......................4  
Cis  2541  C++ Language Programming ................................4  
Cis  2542  Advanced C++ with Data Structure Applications .......4

CERTIFICATE

The **Game Design and Development certificate** will prepare the student for careers in video game design and development.

**Field of Study Code: CIS.CER.GAMED**

Total Credits Required ........................................................ 32  
Cis  1199  Introduction to Game Industry ............................3  
Cis  1200  Game Design .....................................................3  
Cis  1201  Advanced Game Design .......................................3  
Cis  1211  2D Game Development .........................................3  
Cis  1212  Game Asset Creation and File Optimization ............3  
Cis  1400  Programming Logic and Technique ........................4  
Cis  2211  2D Game Scripting .............................................3  
Cis  2212  3D Game Development .........................................3  
Cis  2541  C++ Language Programming ................................4  
Art  1101  Drawing I .............................................................3

CERTIFICATE

The **JAVA Language Proficiency certificate** requires 15 credits in the courses listed below.

**Field of Study Code: CIS.CER.JAVA**

Total Credits Required ........................................................ 15  
Cis  1150  Understanding Computers, Information and Systems ........................................................ 3  
Cis  1400  Programming Logic and Technique ........................4  
Cis  2571  Introduction to Java ............................................4  
Cis  2572  Collections in Java ..............................................4

CERTIFICATE

The **LINUX certificate** documents proficiency in the Linux operating system and its environment. This certificate requires 16 credits in the courses listed below.

**Field of Study Code: CIS.CER.LINUX**

Total Credits Required ........................................................ 16  
Cis  1150  Introduction to Computer Information Systems ........3  
Cis  1400  Programming Logic and Technique ........................4  
Cis  1450  Introduction to Linux/Unix Operating Systems ..........3  
Cis  2240  Shell Programming for UNIX/LINUX .......................3  
Cis  2455  LINUX System Administration ...............................3

CERTIFICATE

The **iPhone/iPad Developer Proficiency certificate** prepares the student to design and develop applications for Apple iOS platform in accordance with Apple development standards. This certificate requires 16 credits in the courses listed below.

**Field of Study Code: CIS.CER.IPHPD**

Total Credits Required ........................................................ 16  
Cis  1400  Programming Logic and Technique ........................4  
Cis  2541  C++ Language Programming ................................4  
Cis  2592  iPhone/iPad Application Development ...................4  
Cis  2594  Advanced iPhone/iPad Application Development .......4
CERTIFICATE

The Windows Network Administration certificate for Information Technology (IT) professionals with the knowledge to design and implement a Microsoft network using Active Directory (AD). This certificate requires 21 credits in the courses listed below.

Field of Study Code: CIS.CER.NETWK

Total Credits Required ........................................................ 21
Cis 1150 Understanding Computers, Information and Systems ........................................... 3
Cis 1180 Introduction to Networking ........................................... 3
Cis 1610 Windows Client OS ................................................... 3
Cis 1620 Windows Server OS ................................................... 3
Cis 1630 Windows Server Active Directory (AD) ................................... 3
Cis 1660 Managing a Microsoft Windows Server Network ................................................... 3
Cis 1670 Planning a Microsoft Windows Server Network ................................................... 3

CERTIFICATE

This Windows based Spreadsheet Proficiency Certificate prepares students to utilize spreadsheets, analyze data, and apply business intelligence tools in business applications.

Field of Study Code: CIS.CER.SPREAD

Total Credits Required ........................................................ 11-12
Cis 1110 Introduction to Informatics ........................................ 2
OR
Cis 1130 Windows Basics ................................................... 2
OR
Cis 1150 Understanding Computers, Information and Systems ........................................... 3
OR
Ofti 1200 MS Office for Professional Staff .................................... 3
Cis 1205 Office Suite Software Integration .................................... 3
Cis 1221 Data Analysis with Spreadsheets .................................... 3
Cis 1222 Advanced Spreadsheets with Business Intelligence ........................................... 3

CERTIFICATE

The UNIX Proficiency certificate requires 16 credits in the courses listed below.

Field of Study Code: CIS.CER.UNIX

Total Credits Required ........................................................ 16
Cis 1150 Introduction to Computer Information Systems ........................................... 3
Cis 1400 Programming Logic and Technique ........................................... 4
Cis 1450 Introduction to Linux/Unix Operating Systems ........................................... 3
Cis 2440 Shell Programming for UNIX/LINUX ........................................... 3
Cis 2450 UNIX System Administration ........................................... 3

CERTIFICATE

The Visual BASIC Language Proficiency certificate requires 15 credits in the courses listed below.

Field of Study Code: CIS.CER.VB

Total Credits Required ........................................................ 15
Cis 1150 Understanding Computers, Information and Systems ........................................... 3
Cis 1400 Programming Logic and Technique ........................................... 4
Cis 1510 Graphical User Interface Programming ........................................... 4
Cis 2510 Advanced Graphical User Interface Programming ........................................... 4

CERTIFICATE

The Web Programmer certificate requires 31 credits in the courses listed below.

Field of Study Code: CIS.CER.WEBPRG

Total Credits Required ........................................................ 31
Cis 1120 The Internet ................................................... 2
Cis 1130 Windows Basics ................................................... 2
Cis 1150 Understanding Computers, Information and Systems ........................................... 3
Cis 1180 Introduction to Networking ........................................... 3
Cis 1300 Web Design Software ................................................... 3
Cis 1310 HTML and CSS ................................................... 3
Cis 1400 Programming Logic and Technique ........................................... 4
Cis 2320 JavaScript and Advanced HTML ........................................... 3
Cis 2571 Introduction to Java ................................................... 4
Cis 2572 Collections in Java ................................................... 4

CERTIFICATE

The Web Client Developer certificate provides the necessary skills and knowledge for client-side Web site development. Learn to develop Web sites using Hypertext Markup Language version 5 (HTML5), Cascading Style Sheets (CSS), and JavaScript. You will write code manually, as well as use graphical user interface (GUI) authoring tools, and program client-side, platform-independent solutions. This certificate requires 13 credits in the courses listed below.

Field of Study Code: CIS.CER.CLIENT

Total Credits Required ........................................................ 13
Cis 1300 Web Design Software ................................................... 3
Cis 1310 HTML and CSS ................................................... 3
Cis 1400 Programming Logic and Technique ........................................... 4
Cis 2320 JavaScript and Advanced HTML ........................................... 3