Our State of Play
Higher Education Video Game Alliance Survey 2014-15
From The Executive Committee

Good strategy begins with a full understanding of the landscape within which you are playing. Thus, the impetus behind the Higher Education Video Game Alliance Survey 2014-15: Our State of Play – which we are boldly calling the “first annual” survey of its kind.

These data points represent the first landscape analysis of video game-based programs in higher education. Given our growing membership, and the importance of building a shared understanding of the emerging field and current member needs, we will continue with and expand on this work annually.

As the first survey of its kind in our sector, these findings offer a preliminary glimpse into the depth and diversity of game-based scholarly work at institutions of higher education. Future iterations will be responsive to what we have learned thus far, including more variety in program types (not just degree-conferring, but lab- and center-based work), greater categorization and synthesis of course types offered (based on the initial course data collected herein), and a reflective self-assessment as to how well the Higher Education Video Game Alliance (“The Alliance”) has met its yearly goals.

We are pleased to offer these first insights into the field of video games in higher education. We hope you will find the results as thought provoking as we do.

Sincerely,

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ABOUT THE ALLIANCE
Our mission is to create a platform for higher education leaders which will underscore the cultural, scientific, and economic importance of video game programs in colleges and universities. The key is to create a robust network of resources, including unified advocacy, policymaker engagement, media coverage, and external funding, in order to incubate and harness the impact of this community in a 21st century learning environment.

To learn more about the Higher Education Video Game Alliance, or to become a member, please visit higheredgames.org.
Executive Summary

The Higher Education Video Game Alliance (The Alliance) surveyed 73 colleges and universities with video game certification or degree-granting programs. The first comprehensive nationwide and international survey of its kind, The Alliance now has a clear picture of its landscape. The results of this survey speak volumes to the strength and relevance of the industry today.

Video game education programs are fostering the next generation of video game engineers and designers, creating an environment of committed students, establishing a pipeline of talent, and improving diversity in the field. The findings and statistics that follow signal positive momentum for the video game industry as it continues to drive job creation and economic growth nationwide.

Enrollment

The success of the video game industry begins with education. Enrollment of video game-related programs continues to grow, demonstrating the interest and strength in this course of study at universities and colleges nationwide and internationally.

Key survey findings include:

- Responding game-based programs in higher education account for a total of 7,675 undergraduate students in the United States and four other countries. Such programs are most commonly established within computer and information sciences (roughly 43,000 total undergraduate degrees per year in the States), engineering and engineering technologies (roughly 93,000 per year), and visual and performing arts (roughly 94,000). 1

- The average undergraduate video game-related program has 172 enrolled students; the average graduate program has 46 students.

Gender Diversity

Undergraduate video game programs show a notable level of diversity, by nearly a two to one margin, than other computer science and STEM-related programs. Key survey findings include:

- The average percentage of women in undergraduate programs is slightly more than 30%, with highest representation reported at 57% women. The average is nearly 33% at the graduate level. By contrast, women made up 17.6% of undergraduate and 28.2% of master’s degrees conferred in computer and information sciences, and 17.2% of undergraduate and 22.7% of master’s degrees in engineering and engineering technologies. 2 The involvement of female perspectives in the industry pipeline is especially relevant as women age 18 or older represent a significantly greater portion of the game-playing population (36%) than boys 18 or younger (17%), and the number of female gamers age 50 and older increased by 32% from 2012 to 2013. 3

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2 Ibid.

Retention

Video game programs have significantly higher retention rates than national averages, building a strong workforce pipeline to meet the needs of today’s 21st century digital economy. Key survey findings include:

- A retention rate of over 88% was reported among programs that tracked first-to-second year retention. By comparison, the 2014 freshman to sophomore year retention rate was 64.2% among public and 69.8% among private institutions conferring BA and BS degrees.4

- Nearly half of all video game–based programs offered some form of scholarship for their students.

Curriculum and Program Content

The diverse curricula offered by video game–related programs demonstrate the breadth and dynamism of this developing field. The diverse array of coursework allows individuals to customize their education to meet the needs of today’s evolving technology workforce. For example:

- Classes offered through video game–related programs span more than 240 subjects ranging from Advanced Drawing and 3D Modeling to Artificial Intelligence and Computer Programming in C++ to Marketing Principles and Business Law.

- More than 62% of video game programs in our sample require a capstone course, but only 20% currently require a practicum and only 18% currently require an internship.

- More than half of responding institutions offer a bachelor’s degree. Roughly half offer a graduate degree. More than half offer some form of program or course sequence that contributes to another degree.

- More than three-fourths of respondents indicated that the traditional liberal arts are important to game-related programs and students in the field; nearly 42% say they are very important.

The Higher Education Video Game Alliance (The Alliance)

According to survey respondents, the five most important functions of The Alliance are:

1. Sharing best practices for instructional and other issues in video game programs
2. Facilitating partnerships with industry such as potential student internships and faculty fellowship programs
3. Coordinating and hosting gatherings connected to existing conferences/events
4. Sharing access to research related to video game design and development
5. Developing collaborative partnership opportunities among its members, including joint pursuit of external funding

Survey Methodology

The Higher Education Video Game Alliance proposed and developed this survey of institutions as the first of its kind to assess the current state of game-related programs in higher education. The survey was sent to contact persons at 328 institutions.5 The online collection of responses began in December of 2014 and continued through January 30, 2015.

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4 ACT “College Student Retention and Graduation Rates from 2000 through 2014” (www.act.org/research/policymakers/reports/graduation.html).
5 These included higher education institutions with identified game-related certifications and degree programs; Source: Entertainment Software Association.
Full Survey Results

Over the last decade, game-related programs have emerged across the globe in a variety of forms and at a variety of institutions. The 73 programs responding to this survey come from five countries and 27 different U.S. states and Canadian provinces. The current sample includes programs distributed primarily across public (54%) and private non-profit (36.5%) institutions of higher education, with additional representation across private for-profit programs (9.5%) and those connected with K-12 education.

Doctoral research-intensive institutions account for 41.9% of programs responding. The breakdown by institutional type is further presented in Table 1.

### Table 1. Institution type where game related programs are located

<table>
<thead>
<tr>
<th>Institution Type</th>
<th>All</th>
<th>Public</th>
<th>Private Non-Profit</th>
<th>Private For-Profit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Two-year</td>
<td>4</td>
<td>4</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Four-year</td>
<td>14</td>
<td>5</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>Master’s granting</td>
<td>12</td>
<td>6</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>Doctoral granting</td>
<td>8</td>
<td>4</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Doctoral/Research</td>
<td>31</td>
<td>17</td>
<td>14</td>
<td>0</td>
</tr>
<tr>
<td>Other *</td>
<td>2</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
</tbody>
</table>

**ACADEMIC DEGREES AND PROGRAMS OFFERED**

Game-related programs exist at many different levels, from a single course to doctoral degrees. Seven categories of program were included in the original survey: minor/area of concentration, certificate, associate’s degree, bachelor’s degree, master’s, joint bachelor’s of science/master’s of science (BS/MS), and doctorate. In addition to these seven categories, programs self-identified in three other areas: informal programs housed within another program, informal programs directed by a single faculty member interested in game-related studies, and research centers that study games and game-related applications but do not confer a degree. Sixty-two of the 73 (86.3%) completed surveys, including institutions with one or more of the seven program types included in the survey. Noting the need to expand the reporting of these additional program types, Table 2 reports the frequency of each of the original seven program types.

### Table 2. Frequency of game program types

<table>
<thead>
<tr>
<th>Type of Program</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minor/area of concentration</td>
<td>35</td>
<td>56.5%</td>
</tr>
<tr>
<td>Certificate</td>
<td>12</td>
<td>19.4%</td>
</tr>
<tr>
<td>Associate’s degree</td>
<td>5</td>
<td>8.1%</td>
</tr>
<tr>
<td>Bachelor’s degree</td>
<td>39</td>
<td>62.9%</td>
</tr>
<tr>
<td>Joint BS/MS degree</td>
<td>7</td>
<td>11.9%</td>
</tr>
<tr>
<td>Master’s degree</td>
<td>28</td>
<td>45.2%</td>
</tr>
<tr>
<td>Doctorate (PhD)</td>
<td>12</td>
<td>19.4%</td>
</tr>
</tbody>
</table>

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6 One is a 3-year program. The other is a 1-year certification-only program.

7 One institution had two completed submissions, each for two different programs. For statistics related to institutional-level data, the institution is only counted once. For all program level data, both responses are treated as separate.
The bachelor’s degree is the most common game-related program, and is offered by well over half of all institutions responding to the survey. This is followed closely by institutions offering a minor or an area of concentration within another bachelor’s degree program. At the graduate level, just under half of the institutions surveyed offered a master’s degree. Nearly two-thirds (65.6%) of all institutions with some formal game related curriculum offered more than one degree, with one institution offering six of the seven options.

Table 3 shows the concordance between degree types indicating the number of programs offering more than one type of degree. The diagonal represents the number of degree programs offering only that type of degree. For example there are seven programs that offer a minor and only a minor. The values in the rows will not sum because programs may be counted in multiple columns; for example, institutions offering a certificate, BS, and PhD will be counted in the bachelor’s row under each of the associated columns. Programs offering graduate degrees tend to offer both an MS and a PhD. Graduate-granting programs are also quite likely to offer a variety of undergraduate options, including minors, certificates and/or bachelor’s degree.

<table>
<thead>
<tr>
<th>Type of Program</th>
<th>Minor/Area of Concentration</th>
<th>Certificate</th>
<th>Associate's degree</th>
<th>Bachelor's degree</th>
<th>Joint BS/MS degree</th>
<th>Master's degree</th>
<th>Doctorate (PhD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minor/Area of Concentration</td>
<td>7</td>
<td>7</td>
<td>1</td>
<td>22</td>
<td>6</td>
<td>15</td>
<td>7</td>
</tr>
<tr>
<td>Certificate</td>
<td>7</td>
<td>1</td>
<td>3</td>
<td>6</td>
<td>2</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Associate’s degree</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Bachelor’s degree</td>
<td>22</td>
<td>6</td>
<td>1</td>
<td>9</td>
<td>7</td>
<td>18</td>
<td>6</td>
</tr>
<tr>
<td>Joint BS/MS degree</td>
<td>6</td>
<td>2</td>
<td>0</td>
<td>7</td>
<td>0</td>
<td>7</td>
<td>4</td>
</tr>
<tr>
<td>Master’s degree</td>
<td>15</td>
<td>3</td>
<td>0</td>
<td>18</td>
<td>7</td>
<td>3</td>
<td>11</td>
</tr>
<tr>
<td>Doctorate (PhD)</td>
<td>7</td>
<td>2</td>
<td>0</td>
<td>6</td>
<td>4</td>
<td>11</td>
<td>0</td>
</tr>
</tbody>
</table>

Most programs began in the last 15 years, and the average age of these programs is under 10 years (starting in 2007). Three responding institutions are in the process of developing a game related program at the time of the response.
ENROLLMENT

Not all respondents reported enrollment information, and a few programs were in development, pilot delivery, or just beginning. However, 46 programs reported undergraduate enrollment estimates, and 26 reported graduate enrollment estimates. Enrollment numbers are not externally verified, and thus should be treated as estimates.8

Undergraduate enrollment. Programs reporting undergraduate enrollment estimates revealed that the average program size was 172 students. However, the median enrollment is 100 students, indicating that the mean is skewed by the relatively large enrollment of some programs. Table 4 shows the breakdown in enrollment by size for six selected ranges. The bottom quartile for undergraduate enrollment is below 52 students, and the top quartile for enrollment is above 262 students.

Table 4. Undergraduate enrollment by size

<table>
<thead>
<tr>
<th>Undergraduate Program Size</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 10</td>
<td>1</td>
<td>2.3%</td>
</tr>
<tr>
<td>10-49</td>
<td>9</td>
<td>20.9%</td>
</tr>
<tr>
<td>50-99</td>
<td>10</td>
<td>23.3%</td>
</tr>
<tr>
<td>100-249</td>
<td>9</td>
<td>20.9%</td>
</tr>
<tr>
<td>250-499</td>
<td>11</td>
<td>25.6%</td>
</tr>
<tr>
<td>500+</td>
<td>3</td>
<td>7.0%</td>
</tr>
</tbody>
</table>

Gender distribution (undergraduate). The distribution of men and women was reported for 40 of the 46 institutions providing enrollment estimates at the undergraduate level. The total number of students enrolled in undergraduate programs was 7,675. Among programs reporting enrollment by gender, 23.1% of participants were women, which is consistent with the median percentage of women of all programs. The mean percentage of women in reporting programs is slightly higher at 30.3%, with the highest representation reported as 57% women.

Graduate enrollment. At the graduate level, 26 programs reported enrollment estimates, with 25 offering a breakdown by gender. The average enrollment was 46.1 students, with 32.7% of those students women. Six large programs (more than 90 students) skew the enrollment average, so the median (26.6 students) may be a better indicator of typical graduate program size. Table 5 shows the distribution of graduate enrollment across size categories.

Table 5. Graduate enrollment by size

<table>
<thead>
<tr>
<th>Graduate Program Size</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 10</td>
<td>5</td>
<td>19.2%</td>
</tr>
<tr>
<td>10-29</td>
<td>9</td>
<td>34.6%</td>
</tr>
<tr>
<td>30-49</td>
<td>3</td>
<td>11.5%</td>
</tr>
<tr>
<td>50-69</td>
<td>3</td>
<td>11.5%</td>
</tr>
<tr>
<td>70-89</td>
<td>0</td>
<td>0.0%</td>
</tr>
<tr>
<td>90+</td>
<td>6</td>
<td>23.1%</td>
</tr>
</tbody>
</table>

8 Some programs reported exact numbers, while others noted that their numbers were close, but should be considered approximate.
**Program Administration**

Program administrators are most likely to be department chairs (22) or directors (17), with the primary distinction between these two groups being the average age of the program and the type of graduate degree offered. Programs granting doctoral degrees were more likely to have a chair/head as administrator, while master’s-only programs were managed by directors. Both chairs and directors oversee similar numbers of full-time faculty (averages of 8 and 7.7 respectively). Coordinators (defined as someone with less than 50% of their time assigned to administrative duties) make up 23.3% of administrators, and they tend to oversee primarily undergraduate-only programs and those with fewer students and faculty. A small number of responding programs are lead by deans (3), and some are directed by faculty with no administrative assignment (2). Table 6 reports the number of program in each of the four major types included on the original survey. Some of the non-responses in this category came from developing or new programs.

**Table 6. Program characteristics by administrator type**

<table>
<thead>
<tr>
<th>Administrator Title</th>
<th>Total</th>
<th>MS/PhD</th>
<th>Mean UG Enrollment</th>
<th>Mean Grad Enrollment</th>
<th>Mean Age of Program</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chair/Department Head</td>
<td>22</td>
<td>12</td>
<td>204.5</td>
<td>58.4</td>
<td>13 years</td>
</tr>
<tr>
<td>Director (&gt; 50% admin)</td>
<td>19</td>
<td>14</td>
<td>243.2</td>
<td>46.6</td>
<td>7 years</td>
</tr>
<tr>
<td>Coordinator (&lt; 50% admin)</td>
<td>17</td>
<td>1</td>
<td>85.6</td>
<td>*</td>
<td>5.5 years</td>
</tr>
<tr>
<td>Dean</td>
<td>3</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>Other/Not reported</td>
<td>12</td>
<td>*</td>
<td>*</td>
<td>*</td>
<td>*</td>
</tr>
</tbody>
</table>

**Additional Program Characteristics**

The survey asked a series of questions about additional characteristics that give some indication of the state of the educational environment. This section summarizes the results from those items, including scholarships, assistantships, retention, and graduation rates, and completion of program reviews.

**Scholarships.** Just under half (47.6%) of all programs offer some form of scholarship. Programs offering scholarships tended to be larger in undergraduate enrollment (average of 231.4 students) compared to those without scholarships (average of 132.5 students). Scholarships are more common in programs also offering graduate degrees and non-degree certification.

**Graduate assistantships.** Assistantships are common across the 31 programs responding to this item, with 25 programs (80.6%) providing some form of graduate assistantship. As with scholarships programs, graduate assistantships are associated with larger programs. The average graduate enrollment of the programs with assistantships is 58.9, compared to 18.8 for the few programs not offering an assistantship. Future surveys may wish to include further assessment of the number of assistantships and questions about tuition remission/reduction and other compensation-related items.

**Retention and graduation rates.** Retention and graduation rates are often-used metrics in assessing educational programs. As with enrollment numbers, these are not externally verified, and should be considered estimates of retention rates. Further, at least one program noted that they are a one-year program, meaning for them the first-to-second-year retention rate is irrelevant. Of the 38 programs reporting a first-to-second-year retention rate, the average was 88.1% and the median was 90.0%. Four-year graduation rate is also widely used, but not always applicable, as at least one program noted their degree is intended to be earned in five years, and several other programs offer joint BS/MS degrees. The mean reported four-year graduation rate was 74% based on self-reported rates from 29 programs, with a median graduation rate of 82%. There was little change in the six-year graduation rates overall.

**Program review.** Thirty-nine programs (63.9% of those responding to the question) had completed a program review. Of those completing a program review, 82.1% had an external evaluator and 74.4% were required by the institution. Almost half (43.6%) of those reporting a review were completed within the last year, with 69.2% reporting completing a program review since 2011.
**ADDITIONAL SERVICES**

Additional student-relevant services are often managed at either an institutional or a program level. For each of five categories, programs indicated whether the service was offered at the institutional level, program level, or not at all. Table 7 shows the breakdown by response for each of the five categories.

**Table 7.** Responses for presence of five forms of student service and contact

<table>
<thead>
<tr>
<th>Service or Contact</th>
<th>Offered at Institutional Level</th>
<th>Offered at Program Level</th>
<th>Not Available</th>
</tr>
</thead>
<tbody>
<tr>
<td>Job placement services</td>
<td>48.5%</td>
<td>34.8%</td>
<td>16.7%</td>
</tr>
<tr>
<td>High school bridge program</td>
<td>31.8%</td>
<td>27.3%</td>
<td>40.9%</td>
</tr>
<tr>
<td>Diversity enhancement initiatives</td>
<td>58.2%</td>
<td>19.4%</td>
<td>22.4%</td>
</tr>
<tr>
<td>Exit survey or interview</td>
<td>34.3%</td>
<td>38.8%</td>
<td>26.9%</td>
</tr>
<tr>
<td>Maintain contact with former students*</td>
<td>27.3%</td>
<td>57.6%</td>
<td>15.2%</td>
</tr>
</tbody>
</table>

*This includes alumni and people who left higher education for the work world and therefore are not technically alumni.*
One of the goals of The Alliance survey was to gain a better understanding of the depth and breadth of game-related curricula. To that end, programs were asked to indicate courses that were required, elective, or not offered in a number of different categories. With the knowledge that generating a comprehensive list of courses would be nearly impossible and ultimately unmanageable, the survey used 21 general course categories (Table 8) and offered programs the opportunity to enter information on all additional courses (see Appendix A).

**Undergraduate.** The great variety in course offerings and type (required or elective) is apparent in the table. Only the most generic of descriptors (project courses) is required by more than half of the programs at the undergraduate level. This is most certainly due to the team-based model of game development, and the fact that program emphases vary widely from one institution to another.

**Table 8.** Percentage of programs (undergraduate) reporting course use for each of 21 course categories.

<table>
<thead>
<tr>
<th>Course</th>
<th>Required of All Students</th>
<th>Required in Some Specializations</th>
<th>Elective</th>
<th>Not Available</th>
</tr>
</thead>
<tbody>
<tr>
<td>3D Modeling</td>
<td>28.8%</td>
<td>24.2%</td>
<td>27.3%</td>
<td>18.2%</td>
</tr>
<tr>
<td>Animation</td>
<td>22.7%</td>
<td>31.8%</td>
<td>21.2%</td>
<td>21.2%</td>
</tr>
<tr>
<td>Audio Design</td>
<td>12.1%</td>
<td>13.6%</td>
<td>36.4%</td>
<td>34.8%</td>
</tr>
<tr>
<td>Business of Gaming</td>
<td>21.2%</td>
<td>7.6%</td>
<td>24.2%</td>
<td>40.9%</td>
</tr>
<tr>
<td>Critical Game Studies</td>
<td>30.3%</td>
<td>4.5%</td>
<td>21.2%</td>
<td>39.4%</td>
</tr>
<tr>
<td>Game Artificial Intelligence</td>
<td>7.6%</td>
<td>28.8%</td>
<td>22.7%</td>
<td>37.9%</td>
</tr>
<tr>
<td>Game Design</td>
<td>45.5%</td>
<td>18.2%</td>
<td>21.2%</td>
<td>13.6%</td>
</tr>
<tr>
<td>Game Engine Scripting</td>
<td>30.3%</td>
<td>21.2%</td>
<td>21.2%</td>
<td>22.7%</td>
</tr>
<tr>
<td>Game Platform Hardware Architecture</td>
<td>1.5%</td>
<td>22.7%</td>
<td>21.2%</td>
<td>48.5%</td>
</tr>
<tr>
<td>Game Production</td>
<td>34.8%</td>
<td>12.1%</td>
<td>18.2%</td>
<td>25.8%</td>
</tr>
<tr>
<td>Game Programming</td>
<td>31.8%</td>
<td>24.2%</td>
<td>25.8%</td>
<td>16.7%</td>
</tr>
<tr>
<td>Game Research</td>
<td>24.2%</td>
<td>13.6%</td>
<td>31.8%</td>
<td>24.2%</td>
</tr>
<tr>
<td>Games and Society</td>
<td>22.7%</td>
<td>9.1%</td>
<td>33.3%</td>
<td>28.8%</td>
</tr>
<tr>
<td>Games and Learning</td>
<td>16.7%</td>
<td>10.6%</td>
<td>40.9%</td>
<td>28.8%</td>
</tr>
<tr>
<td>Graphics</td>
<td>30.3%</td>
<td>31.8%</td>
<td>18.2%</td>
<td>18.2%</td>
</tr>
<tr>
<td>Interactive Storytelling</td>
<td>24.2%</td>
<td>19.7%</td>
<td>21.2%</td>
<td>30.3%</td>
</tr>
<tr>
<td>Level Design</td>
<td>18.2%</td>
<td>27.3%</td>
<td>15.2%</td>
<td>33.3%</td>
</tr>
<tr>
<td>Music Courses</td>
<td>3.0%</td>
<td>10.6%</td>
<td>48.5%</td>
<td>34.8%</td>
</tr>
<tr>
<td>Project Courses</td>
<td>56.1%</td>
<td>6.1%</td>
<td>12.1%</td>
<td>19.7%</td>
</tr>
<tr>
<td>Serious Games</td>
<td>16.7%</td>
<td>9.1%</td>
<td>43.9%</td>
<td>27.3%</td>
</tr>
<tr>
<td>Visual Design</td>
<td>28.8%</td>
<td>22.7%</td>
<td>24.2%</td>
<td>22.7%</td>
</tr>
</tbody>
</table>
The list of additional courses listed under other required or elective offerings numbers more than 240 different course titles. A review of the list (see Appendix A) reveals a number of courses related to specific programming languages or applications; character, world, and story development; media, film, or animation; user interface and user experience; history and culture of games; and mobile application development, to name only a few.

Three separate items asked about some basic curricular elements that might be addressed by specific coursework, or outside of coursework. Table 9 shows the breakdown of responses about internships, practicum and capstone courses.

Table 9. Presence of three general curricular components

<table>
<thead>
<tr>
<th></th>
<th>Required</th>
<th>Optional</th>
<th>Planning</th>
<th>Not Offered</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internship</td>
<td>18.2%</td>
<td>54.5%</td>
<td>6.1%</td>
<td>16.7%</td>
</tr>
<tr>
<td>Practicum</td>
<td>19.7%</td>
<td>33.3%</td>
<td>7.6%</td>
<td>34.8%</td>
</tr>
<tr>
<td>Capstone Course</td>
<td>62.1%</td>
<td>12.1%</td>
<td>7.6%</td>
<td>15.2%</td>
</tr>
</tbody>
</table>

Graduate. Programs offering graduate degrees were asked to respond concerning the same 21 courses and their applicability at the graduate level. Results for the 29 programs that responded are summarized in Table 10 (next page). Comparison between undergraduate and graduate course requirements reveals a greater emphasis on game design, production, and research, as would be expected at the graduate level. Specific course areas are more likely to be electives due to the specialized and varied nature of graduate study, but the two lists are very similar.
<table>
<thead>
<tr>
<th>Course</th>
<th>Required of All Students</th>
<th>Required in Some Specializations</th>
<th>Elective</th>
<th>Not Available</th>
</tr>
</thead>
<tbody>
<tr>
<td>3D Modeling</td>
<td>13.8%</td>
<td>13.8%</td>
<td>58.6%</td>
<td>10.3%</td>
</tr>
<tr>
<td>Animation</td>
<td>13.8%</td>
<td>13.8%</td>
<td>58.6%</td>
<td>10.3%</td>
</tr>
<tr>
<td>Audio Design</td>
<td>3.4%</td>
<td>10.3%</td>
<td>58.6%</td>
<td>24.1%</td>
</tr>
<tr>
<td>Business of Gaming</td>
<td>24.1%</td>
<td>3.4%</td>
<td>34.5%</td>
<td>37.9%</td>
</tr>
<tr>
<td>Critical Game Studies</td>
<td>31.0%</td>
<td>10.3%</td>
<td>27.6%</td>
<td>31.0%</td>
</tr>
<tr>
<td>Game Artificial Intelligence</td>
<td>3.4%</td>
<td>17.2%</td>
<td>58.6%</td>
<td>17.2%</td>
</tr>
<tr>
<td>Game Design</td>
<td>51.7%</td>
<td>13.8%</td>
<td>20.7%</td>
<td>10.3%</td>
</tr>
<tr>
<td>Game Engine Scripting</td>
<td>24.1%</td>
<td>17.2%</td>
<td>27.6%</td>
<td>27.6%</td>
</tr>
<tr>
<td>Game Platform Hardware Architecture</td>
<td>6.9%</td>
<td>10.3%</td>
<td>51.7%</td>
<td>27.6%</td>
</tr>
<tr>
<td>Game Production</td>
<td>48.3%</td>
<td>6.9%</td>
<td>20.7%</td>
<td>20.7%</td>
</tr>
<tr>
<td>Game Programming</td>
<td>34.5%</td>
<td>24.1%</td>
<td>27.6%</td>
<td>10.3%</td>
</tr>
<tr>
<td>Game Research</td>
<td>44.8%</td>
<td>17.2%</td>
<td>20.7%</td>
<td>17.2%</td>
</tr>
<tr>
<td>Games and Society</td>
<td>31.0%</td>
<td>10.3%</td>
<td>34.5%</td>
<td>20.7%</td>
</tr>
<tr>
<td>Games and Learning</td>
<td>17.2%</td>
<td>13.8%</td>
<td>41.4%</td>
<td>24.1%</td>
</tr>
<tr>
<td>Graphics</td>
<td>17.2%</td>
<td>17.2%</td>
<td>48.3%</td>
<td>10.3%</td>
</tr>
<tr>
<td>Interactive Storytelling</td>
<td>17.2%</td>
<td>13.8%</td>
<td>44.8%</td>
<td>20.7%</td>
</tr>
<tr>
<td>Level Design</td>
<td>6.9%</td>
<td>17.2%</td>
<td>41.4%</td>
<td>31.0%</td>
</tr>
<tr>
<td>Music Courses</td>
<td>0.0%</td>
<td>10.3%</td>
<td>55.2%</td>
<td>31.0%</td>
</tr>
<tr>
<td>Project Courses</td>
<td>62.1%</td>
<td>6.9%</td>
<td>17.2%</td>
<td>10.3%</td>
</tr>
<tr>
<td>Serious Games</td>
<td>34.5%</td>
<td>6.9%</td>
<td>34.5%</td>
<td>20.7%</td>
</tr>
<tr>
<td>Visual Design</td>
<td>24.1%</td>
<td>13.8%</td>
<td>41.4%</td>
<td>17.2%</td>
</tr>
</tbody>
</table>
Table 11. Top 10 courses by category (Undergraduate)

<table>
<thead>
<tr>
<th>Required (of all students)</th>
<th>Elective</th>
<th>Not Available</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Courses</td>
<td>Music Courses*</td>
<td>Game Platform Hardware</td>
</tr>
<tr>
<td>Game Design</td>
<td>Serious Games</td>
<td>Business of Gaming*</td>
</tr>
<tr>
<td>Game Production</td>
<td>Games and Learning*</td>
<td>Critical Game Studies**</td>
</tr>
<tr>
<td>Game Programming*</td>
<td>Audio Design</td>
<td>Game Artificial Intelligence</td>
</tr>
<tr>
<td>Graphics</td>
<td>Games and Society*</td>
<td>Music Courses*</td>
</tr>
<tr>
<td>Game Engine Scripting</td>
<td>Game Research</td>
<td>Audio Design</td>
</tr>
<tr>
<td>Critical Game Studies**</td>
<td>3D Modeling*</td>
<td>Level Design</td>
</tr>
<tr>
<td>3D Modeling*</td>
<td>Game Programming*</td>
<td>Interactive Storytelling</td>
</tr>
<tr>
<td>Visual Design*</td>
<td>Visual Design*</td>
<td>Games and Learning*</td>
</tr>
<tr>
<td>Game Research</td>
<td>Business of Gaming*</td>
<td>Games and Society*</td>
</tr>
</tbody>
</table>

* Represents courses that appear in two adjacent categories  
** Represents courses that appear in both “Required” and “Not Available” columns

Table 12. Top 10 courses by category (Graduate)

<table>
<thead>
<tr>
<th>Required (of all students)</th>
<th>Elective</th>
<th>Not Available</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Courses</td>
<td>3D Modeling</td>
<td>Business of Gaming**</td>
</tr>
<tr>
<td>Game Design</td>
<td>Animation</td>
<td>Music Courses*</td>
</tr>
<tr>
<td>Game Production</td>
<td>Audio Design*</td>
<td>Level Design</td>
</tr>
<tr>
<td>Game Research</td>
<td>Game Artificial Intelligence</td>
<td>Critical Game Studies**</td>
</tr>
<tr>
<td>Game Programming</td>
<td>Music Courses*</td>
<td>Architecture*</td>
</tr>
<tr>
<td>Serious Games</td>
<td>Architecture*</td>
<td>Game Engine Scripting</td>
</tr>
<tr>
<td>Critical Game Studies**</td>
<td>Graphics</td>
<td>Audio Design*</td>
</tr>
<tr>
<td>Games and Society**</td>
<td>Interactive Storytelling</td>
<td>Games and Learning*</td>
</tr>
<tr>
<td>Business of Gaming**</td>
<td>Visual Design</td>
<td>Interactive Storytelling</td>
</tr>
<tr>
<td>Game Engine Scripting</td>
<td>Games and Learning*</td>
<td>Games and Society**</td>
</tr>
</tbody>
</table>

* Represents courses that appear in two adjacent categories  
** Represents courses that appear in both “Required” and “Not Available” columns
THE ALLIANCE PROGRAM OPINION ITEMS
A series of items was included to evaluate the respondents’ opinions on issues relevant to the development and direction of the Higher Educational Video Game Alliance. The inclusion of these items and the responses is exploratory.

Value of the liberal arts in game-related programs. Institutions were asked to respond to the question “how important are traditional liberal arts courses in a video game related curriculum?” On a scale ranging from 1 to 6, with 1 being very important and 6 being not at all important, the mean response value was 2.09 (corresponding with a value of ‘moderately important’). Overall, 70.1% of respondents indicated that the traditional liberal arts were moderately or very important.

Accreditation. Respondents were also asked to rate their agreement with the following statement: “Professional accreditation of game design programs is beneficial for promotion, growth and sustained success.” Using a 6 point scale, with 1 being strongly agree and 6 being strongly disagree, the mean response value was 2.88 (somewhat agree), and 42.6% moderately or strongly agreed.

Mission of The Alliance. A series of questions probed the perceived value of several services, activities, or products potentially delivered or organized by The Alliance. These were rated using a 7-point scale ranging from 1 (very valuable) to 7 (not at all valuable). Table 13 shows the mean value and percentages of responses in the 1 and 2 categories. On average all items were rated as potentially valuable, although some items are not highly valued by a majority of respondents.

| Table 13. Perceived value of potential services, activities or products coordinated by The Alliance |
|-----------------------------------------------|---------|-----------------|
| Share best practices forum for instructional and other issues in video game programs | 1 | 1.70 | 86.8% |
| Facilitate partnerships with the industry (such as potential student internship and faculty fellowship programs) | 2 | 1.82 | 81.2% |
| Coordinate/host gatherings connected to existing conferences/events | 3 | 1.98 | 72.5% |
| Share access to research related to video game design and development | 4 (tie) | 2.07 | 78.3% |
| Develop collaborative partnership opportunities, which may include joint pursuit of external funding | 4 (tie) | 2.07 | 75.4% |
| Facilitate advocacy activities encouraging private and public spending on video game-related issues | 5 | 2.11 | 69.6% |
| Collect and distribute data on video game programs (such as aggregate information from this survey) | 6 (tie) | 2.18 | 71.0% |
| Sponsor a conference dedicated to video games and education topics | 6 (tie) | 2.18 | 63.8% |
| Collect and distribute data on post-graduate activity (job placement, salary, job satisfaction) | 7 | 2.23 | 66.7% |
| Facilitate advocacy activities to educate key policymakers in the Legislative and Executive Branches of government | 8 | 2.57 | 59.4% |
| Provide a list of qualified consultants and external evaluators | 9 | 2.82 | 37.7% |
| Produce a guide and ranking of video game-related programs based on transparent and publicly available metrics | 10 | 3.05 | 45.6 |
ACKNOWLEDGMENTS

Acknowledgment goes to the Entertainment Software Association for providing generous resources for deliverables such as “Our State of Play” while letting the Higher Education Video Game Alliance develop as a truly membership-driven organization. The Alliance would like to thank our survey consultant, Dr. Doug Peterson from the University of South Dakota, for leading us through this process and providing sound analysis of our results. The Alliance also recognizes McAllister & Quinn, our implementers, who helped facilitate and sponsor this survey, and Graymatter Advertising and Brunswick Group for ensuring this survey’s readiness for public consumption.
Appendix A

This represents a comprehensive list of every course added in the other category. It represents course names and contains many courses that are elective and multiple courses of which only one is required:

2D and 3D Graphics and Game Engines
2D Digital Art and Animation for Games
2D Digital Scene Rendering
3D Digital Art for Games and Video
3D Modeling and Fabrication
3D Modeling and Unity3D
Advanced 2D
Advanced 3D Projects
Advanced Computer Graphics
Advanced Digital Audio
Advanced Digital Imaging
Advanced Drawing
Advanced Interactive Animation
Advanced Seminars in Game Programming
Advanced Visual Effects
Aesthetics of Game Design
Affective Computing
Analytics
Animation I
Animation II
Animation Thesis
ART && CODE && INTERACTIVITY
Art For Interactive Media
Art History
Art History I
Artificial Intelligence
Audio Programming
Basic Drawing
Behavioral Neuroscience
Board Game Design
Business Law
Business Law Ethics
Calculus I
Character and Story For Games
Character and World Design
Character Animation in 3D
Character Design
Character Rigging
Cinematic Storytelling and Production
Cognitive Modeling
Cognitive Psychology
Commercial Game Development Practicum
Communication Studies
Computer Audio Production
Computer Graphics
Computer Graphics for Film and Games
Computer Networks
Computer Organization
Computer Programming in C++
Computer Science I
Computing for Visualization
Console Programming
Creating Music for Film, Video, and Games
Creative Portfolio Tools
Creative Seminar
Creative Writing
Data Structures
Data Structures and Algorithms
Database Programming
Design Process
Designing Virtual Worlds
Digital Filmmaking
Digital Games for Communication
Digital Painting
Distributed Computing
Documentation for Design
Drawing
Editing
Engineering Entrepreneurship
Engineering Math
Ethics and Gaming
Experimental Game Design
Experimental Games
Figure Drawing
Flash Prototyping
Flash Scripting
Foley
Foundations of Computer Science
Foundations of HCI Usability
Fundamentals in Digital Audio
Fundamentals of Accounting for Decision-Making
Fundamentals of Animation
Game Artificial Intelligence
Game Architecture
Game Art:
  3D Environments
  Drawing for Game Development
  Foundations of Concept Painting
  2D Game Art
  Technical Art
  Advanced Seminar for Game Art
  Senior Portfolio for Game Art
  3D Character Development
  Game Design
Game Design for Diverse Populations
Game Design:
  Game Systems and Experience Design
  Advanced Seminars in Game Design
  Senior Portfolio for Game Design
  Visual Communication for Game Designers
  Game Development Capstone: 2D Games
Game Development Capstone: 3D Games
Game Development I
Game Development II
Game Device Design
Game Literacy
Game Mechanics
Game Physics
Game Production
Game Programming
Game Technology
Game Testing
Game Theory
Games, Culture, Technology
Gaming Mathematics for Non-Programmers
Generic Programming with the STL
Graphical Storytelling
History and Culture of Games
History of Games
Human Factors in Design
Human Computer Interaction
Immersive Design
Information Architecture
Information Design
Interaction Design
Interaction Design/UX/UI
(required for some specializations)
Interactive Animation
Interactive Digital Storytelling
Interface Design
Intermediate Audio Recording
Intermediate Computer/Electronic Music
Intermediate Digital Art and Animation for Games
Intermediate Digital Imaging
Internet Programming
Intro to Artificial Intelligence
Intro to Algorithms
Intro to Cognitive Science
Intro to Communication Theory
Intro to Game Design
Intro to Philosophy of Science
Introduction to 2D Animation
Introduction to Audio Recording
Introduction to Communication Theory
Introduction to Computer/Electronic Music
Introduction to Digital Media
Introduction to Interactive Media
and Game Development
Introduction to Management
Introduction to Media and Live Performance
Introduction to Visual Communication
Introductory Economics
Junior Year Study Away
Knowledge and Rationality
Learning and Advanced Game AI
Level Design
Level Design in Unreal 4/Unity Pro
Life Drawing
Linear Algebra
Linux/Unix Programming
LiveCode
Location-Based Design
Managerial Finance
Marketing Principles
Mathematics for Game Programmers
Matrices
Media and Popular Culture
Media History and Theory
Media Studio Imaging
Metaphysics and Consciousness
Microcomputers and Applications
Minds and Machines
Mobile App Development
Mobile Computing
Mobile Design
Monetization
Motion Capture
Music and Sound
Natural Language Processing
Network Gameplay
Network Programming
Networking
Networking for Online Games
Object-Oriented Programming
Operating Systems
Organic Modeling
Organizational Behavior in High-Performing Organizations
Painting
Philosophy of AI
Physics
Physics based Animation
Physics I
Placement/Internship or Civic Engagement Project
Portfolio
Post Production
Principles of Design
Principles of Software
Programming for Cognitive Science and Artificial Intelligence
Programming for Performance
Programming Languages
Project Management:
  Business and Entrepreneurism
  Financial and Managerial Accounting
  Marketing
  Project Management and Team Leadership
  Management and Organization Behavior
  Managerial Economics
  Business Law
  International Business
  Human Resources
  Financial Management
  Projects in Computer/Electronic Music
Psychology of Games
Research Project
Sculpture I
Sculpture II
Sensation and Perception
Serious Games and Virtual Worlds
Small Group Communications
Social Gaming
Social Modeling
Software Engineering
Statistics
Storyboarding
Strategy and Policy
Studio Design in HCI
The Multimedia Century
Typography
University Core Curriculum
User Centered Design
User Interface Design
Vectors and 3D Math
Video Game Level Design
Virtual Reality
Virtual Worlds
Visual Effects and Motion Graphics
VR
Writing for Games I
Writing for Games II
Writing Internship
Writing/Narrative Design for Video Games
Appendix B

The following are the Institutional Charter Members of the Higher Education Video Game Alliance, as of January 2015. (Note: This list does not make up the full data set of respondents to the survey.)

American University  
Arizona State University  
Ball State  
Becker College  
Berklee College of Music  
California Polytechnic State University  
Carnegie Mellon University  
Champlain College  
City University of New York (CUNY)  
Concordia University  
Dartmouth College  
DePaul University  
DigiPen Institute of Technology  
Drexel University  
Dublin Institute of Technology  
Duke University  
Eastern Kentucky University  
Excelsior College  
Ferris State University  
Franciscan University of Steubenville  
George Mason University  
Georgia Institute of Technology  
Grantham University  
Hampshire College  
Harrisburg University  
Howard University  
Indiana University  
Louisiana State University  
Maryland Institute College of Art  
Massachusetts Institute of Technology  
Michigan State University  
New York Institute of Technology  
New York University  
Northeastern University  
Northern Illinois University  
Parsons The New School for Design  
Pennsylvania State University  
Raritan Valley Community College  
Rensselaer Polytechnic University  
Rochester Institute Of Technology  
Royal Melbourne Institute of Technology University  
Saint Edwards University  
Southern Polytechnic State University  
Stanford University  
Texas A&M University  
The State University of New York – Empire State College  
University of California Irvine  
University of California Los Angeles  
University Of California Santa Cruz  
University of Miami  
University of Southern California  
University of Tampere  
University of Texas – Austin  
University of Utah  
University of Waterloo  
University of Wisconsin – Madison  
University of Wisconsin – Platteville  
University of Wisconsin – Stout  
University of Wisconsin – Whitewater  
Uppsala University  
Vanderbilt University  
Walsh University  
Western University – Canada  
Worcester Polytechnic Institute  
Yale University