

Contact: Rachel Boon

**REQUEST FOR NEW PROGRAM AT IOWA STATE UNIVERSITY: BACHELOR OF SCIENCE
IN GAME DESIGN**

Action Requested: Consider approval of the request by Iowa State University for a Bachelor of Science in Game Design in the College of Design.

The Council of Provosts and Board office support approval of this program.

Description of proposed program. The Game Design Major (GDM) provides students with an education in game design and development. Game design and development refers to the process of creating the rules, mechanics, gameplay and overall structure of a video game, board game or any interactive experience. It is a multidisciplinary field that combines elements of art, storytelling, psychology and technology to craft engaging and enjoyable games. The GDM brings together multiple Iowa State colleges, including but not limited to, the College of Design, the College of Engineering, the College of Human Sciences, and the College of Liberal Arts and Sciences to provide a comprehensive and interdisciplinary education.

All enrolled majors complete a common, first-year core curriculum in which they will develop basic skills necessary for their future career plans and success in the GDM. In addition, they will spend that first year joining and building an academic community of future practitioners with their fellow GDM students through those required courses. Students explore theoretical principles of game design, formal and dramatic elements of games, game mechanics and narrative design. They also assess how culture and history contribute to the design and development of game worlds and narratives. All enrolled students acquire introductory skills in computer programming, drawing and digital media that can facilitate the rapid prototyping of games and prepare them well for the selection of their focus area.

In their second year, students will begin shaping their own professional profile by pursuing intermediate and advanced skills in one of three focus areas: (1) Art and Interactive Media Design; (2) Game Computing; or (3) Game Worlds, Narrative Design and Society. Research into game design careers and conversations with experts in industry and peer academic programs have reinforced that each of these focus areas is an essential element of game design. One of our industry partners, Houston Brayton, owner of Gold Creek Games in Des Moines, was impressed that the proposed program “covers the core disciplines that would be expected for a broad understanding of game development.” Several reviewers recognized that the proposed plan serves the pedagogical interests of the program and the career readiness of enrolled students.

Students who graduate with a GDM degree will be prepared to work in major game design studios and companies where specialized skills as game artists, programmers, or writers are sought. Alternatively, many students will find future employment in mid- and boutique-sized game design companies or in adjacent industries. For these jobs they will need a broader, more general skillset. By requiring students to simultaneously develop a specialty and build complementary knowledge and skills in other focus areas, this program is designed to maximize students’ preparation for a competitive and dynamic job market.

During the third and fourth year, the GDM education advances through two key courses. The three-credit junior year Game Design Workshop is an intermediate, project-based, collaborative design course wherein students’ prototype, create, and test iterations of game design concepts that integrate the basics skills learned in the first two years. In the six-credit senior-year Game

Design Capstone students work in teams to develop a game from the concept stage to prototype to play-tested iterations that culminate in a finished game that reflects market and publication standards. The main goal of both classes is to work in teams and to apply the knowledge and skills learned throughout the GDM to create game products. By the end of the program, student portfolios will contain completed games, game design documents, game analyses, and computational models and visualizations. The robust nature of GDM portfolios will provide prospective employers with concrete examples of the students' skills, showing GDM graduates are workforce ready.

This interdisciplinary game design degree focuses on a variety of games including serious and educational games, board and card games, role-playing games, and digital games. The GDM and especially the Workshop and Capstone course projects prepare students for the diverse and expanding game industry as well as allied fields. Students will be prepared to make games at large, midsize, and boutique game design firms and to pursue careers in fields such as marketing and web development, along with the many other fields that value the skills a game designer possesses. This major will seek sponsorships from game industry partners, connecting the capstone course with new product pitch experiences and enhancing job opportunities for graduating majors. Local industry partners will be actively involved with the program - offering invited lectures, critiques, and inspiration to the student developers and opportunities for internships.

Academic objectives. After finishing the Game Design Major, students will be able to:

- Design publishable games
- Develop, critique and analyze game prototypes: analog or digital
- Evaluate user experience in games through playtests and iteration
- Explain how human, social and cultural contexts shape game development and impact
- Utilize the tools and skills of collaboration and creative expression to manage the development of games
- Assess contemporary ethical and cultural issues in game design and gaming culture
- Communicate effectively as part of a team and to various audiences in a variety of professional contexts
- Understand the needs of the game industry and develop their own professional game portfolio

The GDM leadership team will continually assess and adapt these academic objectives as the major grows, as new and current faculty contribute to the degree, and as they receive feedback from students and industry partners.

Need for program. Several data sources suggest a strong demand for a GDM among current and future Iowa State University students. The 2019 Proposal to Review Iowa State University's Undergraduate Programs of Study, produced by the Office of Admissions, identified "game design engineering" as one of three majors particularly relevant to today's student and job market demand. Future students that may enroll in an ISU GDM are already immersed in the world of games and game development.

ISU has a student Game Development Club. The club's Discord channel, an online voice and chat server where users communicate with each other, currently has 653 registered student members. The long-running ISU Guild of Boardgamers & Roleplayers is dedicated to all forms of fantasy roleplaying, historical miniature battles, collectible miniature battles, and board games. It currently has 31 active members. With little substantive advertising, the Game Jam organized by the ISU Game2Work PIRI project attracted over 50 student participants in January 2023. This

interest has longevity at ISU. In 2010, two faculty from the Departments of Art and Visual Culture and Computer Science, through a Motorola Foundation grant, hosted a campus-wide game design competition. This was extremely well received; six teams developed playable games and the winning teams received over \$50,000 in prize money. Current ISU students enroll or have enrolled in a variety of courses that focus on games and game design. These courses regularly reach their enrollment limits. They attract students in design, planning, and architecture and respond to the demands for games in the social sciences.

Other indicators also suggest that demand for a GDM has been growing and will continue to grow on a national level. The PSAT report of Major Selection of 2014 of students in grades 9, 10 and 11 reported an increase of 22% among students naming Game and Interactive Media Design as their desired major. A 2017 survey conducted by Pew Research found that 60 percent of Americans (31.5 million people) between the ages of 18 and 29 play video games (Pew Research Center 2017). A Game Design Major would allow students to convert their personal interest into a meaningful course of study. By introducing a GDM, Iowa State University aims to take a strong, innovative position in a growing area of student demand unserved at our university and underserved across the State of Iowa. Companies in the state like Gold Creek Games, Numinous Games and Hatchlings are seeking employees with the skills offered in the proposed degree around design principles, technical skills and creative expression.

Relationship to existing programs at the institution. The proposed GDM will greatly complement the existing programs at Iowa State University. As an inherently interdisciplinary field, game design offers Iowa State University the opportunity to leverage and enhance scholars and lecturers across the university.

The College of Design will manage this interdisciplinary and inter-college major. The College's core design program and seven distinct majors mean that the College has the experience and assets that make it an appropriate home for the administrative elements of the major. Among the faculty are expert instructors and researchers in topics directly related to core Game Design skills including principles of design, visualization, illustration, virtual spaces, experiential environments, user experience (UX) and more. Moreover, faculty in the College of Design have already begun working in games and publishing research related to games. This includes faculty from the Departments of Community and Regional Planning, Graphic Design, Industrial Design and Architecture. The centrality of studio-based pedagogy to the College's curricular structure also makes it the ideal administrative home for the proposed GDM. The third-year Game Design Workshop and fourth-year Core Capstone courses will be studio-style courses wherein students collaborate with peers and instructors on every stage of game development from concept to iterative prototypes to finished product. The College of Design has experience developing a maker mindset among its students. Its faculty and administration are eager and essential to support a GDM focused on experiential learning and outstanding student outcomes.

Two leaders of this proposal are faculty in the College of Design are Alenka Poplin (Community and Regional Planning) and Anson Call (Graphic Design). They will be introducing new courses or revising existing courses as part of the GDM curriculum. Poplin not only teaches a basic game design course, but also has widely published research on games since 2008 and is well recognized for her research work on serious digital games. Call will introduce a new section of Analog Game Design and Fabrication, an advanced course in graphic design and fabrication skills for analog games. He also teaches multiple courses that are required or suggested within the GDM curriculum.

Similarly, Poplin will teach a new first-year core course, GAME 202: Game Design for Serious Games. Other important GDM courses offered in the College of Design include (but are not limited

to) more advanced skills courses. Departments from across the College of Design have already made commitments to the GDM and other departments in the College will find multiple opportunities to add their expertise.

Many of the contributions of the College of Liberal Art and Sciences (LAS) to the GDM are in the liberal arts, including but not exclusive to the Departments of History, English, Political Science and Religious Studies. Humanistic skills and knowledge are essential to developing games and game worlds that are creative, compelling, or educational. In addition, faculty in LAS are best equipped to support the GDM's proposed academic objective that students graduate with the ability to "explain how human, social, and cultural contexts shape game development and impact." As the game industry has expanded, the development of many games includes robust research into their subject matter (e.g., ancient Roman philosophy, the Iraq War, Norse myths, colonialism and/or democratic elections). Two core leaders of this proposal, Jeremy Best from history and Jeffrey Wheatley from philosophy and religious studies are planning to introduce sibling 200-level courses that explicitly link the skills of the liberal arts to designing games. Best and Wheatley also intend to introduce upper-level courses related to Game Design. Wheatley plans a 300-level Heroes, Myths and Games course and Best aims to offer a 400-level Historical Wargames course. Other faculty have begun innovating in this area as well. For example, Jonathan Hassid from Political Science has introduced POL S 308x: Video Games and Politics.

The basis of the GDM computer programming curriculum comes from the Department of Computer Science. All Game Design majors will take COM S 127: Introduction to Programming, and students will have the option in succeeding years of taking intermediate and advanced coding and programming courses in the department. In addition, one of the proposed faculty hires for the GDM will be a computer scientist able to develop and teach new courses in coding digital game engines and advanced gaming computer science courses. These offerings would complement COM S 437: Computer Game and Media Programming (taught by James Lathrop) to create a strong sequence for students interested in digital game programming. The Department of Computer Science has been a consistent partner with the GDM. The addition of dedicated faculty with a strength in game programming will play an important role in the growth of the major and benefit both the GDM and the Department of Computer Science.

Finally, the newly created Music Technology Minor in the Department of Music and Theater offers courses (and a practical minor) that Game Design students will find useful. The Minor's focus on the technical tools of music production and theory may be useful for students invested in games-related sound design. Intended to serve students with minimal musical prerequisites, Game Design majors will have no trouble integrating this course work into their study plans. The size of the GDM also allows for students to seek out majors and minors that would complement their work; excellent candidates could be a more focused Computer Science major, a minor in Political Science or History, or a major in Journalism and Mass Communication.

The College of Engineering has specialists in a multitude of fields with direct connection to game design and development. COE faculty in Civil, Construction, and Environmental Engineering, Industrial and Manufacturing Systems Engineering, and the Virtual Reality Application Center (VRAC) participated in the early conception of the GDM.

A faculty member in the College of Human Sciences has a significant presence on the presidential interdisciplinary research initiative (PIRI) project Game2Work (G2W). The project concentrates on faculty research integrating games with teaching and workforce development. It regularly brings industry partners together with ISU researchers, faculty and students. The team organizes game jams on ISU campus and greatly contributes to the game industry and university forming unique partnerships on game design, implementation, and marketing. Conversations between the

GDM leadership team and G2W co-PIs have established a strong starting point for future cooperation and a joint commitment to successful collaboration.

Relationship to existing programs at other colleges and universities. A few higher education institutions in Iowa offer programs somehow related to ISU's GDM.

- Western Iowa Tech Community College (Sioux City): Video Game Design (Associate of Applied Sciences)
- Grand View University (Des Moines): Game Design & Interactive Analytics Major (Bachelor of Arts)
- Iowa Lakes Community College (Estherville): Game Design and Development (Associate of Applied Sciences)
- Marshalltown Community College: Esports Program Management (Certificate)

The GDM leadership is exploring the possibility of transfer articulation agreements with these associate degree programs.

The ISU GDM program team envisions possible collaborations with these institutions across Iowa. A Game Symposium, for example, may bring researchers, students and industry together to discuss current trends and exciting research questions. It could attract interesting keynote speakers presenting the most recent ideas, research, and implementations of games. Such a symposium could be combined with game design and implementation demonstrations, game jams and playtesting of prototype games. It has the potential to bring the major players in the game industry across the state together and gain a national and international reputation as an inspiring symposium. ISU GDM could also lead the development of a statewide community of students, industry, and faculty from multiple institutions and have a multiplicative effect on the game industry in Iowa and beyond.

Resources to establish a high-quality program. The interdisciplinary nature of the curriculum works with many existing courses across the university and the GDM leadership team expects a significant area of curricular development to be undertaken by the existing ISU faculty. Faculty involved in teaching will remain supported by their contracting departments. More directed leadership of the curriculum and GDM operations will be provided by the leadership team drawn from participating faculty.

The new GDM will require lasting support. Though much of the GDM will be taught by existing ISU faculty, a successful program that will be able to grow along with student interest and participation must be established from the beginning. The addition of three faculty in the first three years of the major will maximize the impact of the existing resources and establish strong roots for future growth. The GDM requires initial facility commitments that are essential for success.

Some new spaces are needed for the successful operations of the major and recruitment of students to Iowa State. A dedicated office space for the leadership of the program, a Game Development Lab (GDL), and a Game Prototyping Room (GPR) will be needed. In addition, students need on-demand access to fabrication equipment for analog game prototypes. A non-exclusive list of tools needed for student success includes access to 3-D printers, Computer Numerical Control (CNC) routers, laser cutters and engravers, specialized 2-D printers, printmaking tools and other fabrication resources. They are available within the College of Design and at the Student Innovation Center, but a careful study of usage and capacity will be necessary before or just after the formal initiation of the GDM to determine ongoing needs and ascertain future investments.

Student demand. The focus for recruitment will be high schools in Iowa and its surrounding states. The leadership team will especially engage and host events for high schools that have digital media, computer science, and game design courses included in their program. Des Moines Public Schools' Central Campus, for example, offers classes in software design, gaming and programming. Many students attracted to the GDM will not only have some experience playing games but also in creating them, making a more intensive program like the GDM a space for further growth.

Iowa State University's undergraduate students have already made it known that they are interested in this major. Students are passionate about and seek careers in developing digital and analog games. Indeed, the development for this proposal has been prompted by students seeking out a coherent plan of study in game design only to find none. Even now, many are developing their own games and showcasing them in classes across campus. In creating the GDM, Iowa State University will channel existing interest and energy into an actual plan of study useful for students' career ambitions. By emphasizing the hands-on learning experience of producing real, playable games, this major will attract new, eager and entrepreneurial students who want to make their mark in the competitive game industry.

Workforce need/demand. Market researchers project that the global video game industry will grow by 73.8% from 2020-2027. The proliferation of smartphones, the growing internet penetration rate, and the easy availability of games on the internet are expected to contribute to the growth of the market (GrandView 2023)¹. A new report from Juniper Research (2023)² reveals that the video game industry's value will exceed \$200 billion in 2023; nearly a third larger than its \$155 billion worth in 2020. This growth is expected to be led by mobile and cloud gaming. The global board game industry brings in a total revenue of \$3.13 billion and is expected to show an annual growth rate of 7.83% between 2023 and 2027 (Statista 2023)³. Collectively, this data suggests a growing industry with matching growth in workforce demand.

Open video game designer positions in Iowa currently exceed 2,180 (CareerExplorer 2023)⁴. In Iowa and nationally, demand for video game designers is expected to grow by 9.3% through 2026. The Bureau of Labor Statistics projects an increase in demand for software developers from 2020-2030. Iowans could greatly expand the state role in this emerging sector, drawing future employers and stimulating an entrepreneurial climate around game development. There is an opportunity to build on the many advantages Iowa and its communities have for attracting new businesses. The GDM can stimulate state innovation and contribute to a more robust game design and development industry.

Game-based learning, gamification, serious games, analytical games, interactive exercises and other GDM activities can enhance Iowa's existing and future industries. The GDM can expand hands-on training for agriculture, manufacturing, visualization processes in all existing industries, or contribute to the improvement of software for supply-chain management. It will also result in

¹ GrandView (2023). Grand View Research, URL: <https://www.grandviewresearch.com/industry-analysis/videogame-market>, accessed on January 15, 2023.

² Juniper Research (2023). Juniper Research, URL: <https://www.juniperresearch.com/home>, accessed on January 22, 2023.

³ Statista (2023). URL: <https://www.statista.com/outlook/dmo/app/games/boardgames/worldwide>, accessed on February 21, 2023.

⁴ Career Explorer (2023). The Job Market Video Game Designers in the United States, URL: <https://www.careerexplorer.com/careers/video-game-designer/job-market/>, accessed on February 14, 2023.

more technologically advanced skills that will create an invaluable trained local and regional workforce that can be hired by the game industry as well as other adjacent industries.

Funding and Cost. Student tuition will cover most of the costs of running the GDM (see below for student enrollment projections). Additionally, the GDM leadership plans to apply for funds as a Degree of the Future to support three new hires to teach core GDM courses. The program team has already begun partnering with other campus resources to build a sustainable and cross-disciplinary infrastructure to support the major and its students. There are active discussions with the Parks Library to create a Game Collection and support the use of games in classrooms. A Game Collection is important because it will serve as a resource for students and faculty to play and study games at no personal cost. The conversations and potential collaboration between the GDM leadership and Parks Library will harness the latter's expertise in collecting, managing, and borrowing research and teaching media.

Projected student enrollment.

Undergraduate	Y1	Y2	Y3	Y4	Y5
Majors	30	60	120	180	240
Non-Majors	20	20	20	20	20

Accreditation. ISU GDM will apply for programmatic accreditation in the beginning of the fifth year of the program. The National Association of Schools of Art and Design provides accreditation for Game Design programs through its Creative Multidisciplinary Convergence and Technologies standards. Accreditation demonstrates to a variety of audiences that the program in question has undergone and passed a thorough review by a trusted third party. In pursuit of this goal, accreditation standards have been integrated into the initial proposal. A prerequisite for accreditation is that a program has graduated at least three students. The GDM's first graduates will finish the degree in four years, meaning that the accreditation process can begin in Year Five. During years one through four, the standards for accreditation will provide guidance as the major grows and develops.

Date of implementation. Fall 2024.

Letter of Support



July 11, 2024

To the Board of Regents:

The Council of Provosts discussed the Iowa State University proposal for a Bachelor of Science in Game Design and reviewed associated documentation. The university has the resources and expertise for this program already in place through the College of Design along with significant engagement through the Colleges of Liberal Arts & Sciences, Engineering and Human Science making this a truly interdisciplinary program. There is evidence of student demand among current students and workforce benefit in the state of Iowa and throughout the Midwest. The plan indicates due diligence with the other Regent universities regarding related programs and helpful collaboration that strengthened the program design. Based on the evidence and documentation, this program is likely to benefit Iowa State University and the state of Iowa.

The Council of Provosts is supportive of the program and wishes Iowa State the best in its implementation.

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