INFORMATICS PROGRAMS

Informatics Programs at the University of Illinois offers a Ph.D. in Informatics (http://catalog.illinois.edu/graduate/informatics-programs/informatics-phd/), Undergraduate minors in Informatics (http://catalog.illinois.edu/undergraduate/informatics-programs/minors/informatics/), and Game Studies & Design (http://catalog.illinois.edu/undergraduate/ischool/minors/game-studies-design/). Informatics also manages the campus-wide Master of Science in Bioinformatics (http://catalog.illinois.edu/graduate/provost/bioinformatics-ms/). All are interdisciplinary programs with many participating departments. Students can earn the Master of Science in Bioinformatics with a concentration in one of the following departments: Animal Sciences, Crop Sciences, Information Sciences, or Computer Science. The program is overseen by Informatics Programs, but students are members of the department of their concentration. Students can earn the Ph.D. in Informatics with specializations in Bioinformatics; Health and Medical Informatics; Spatial Informatics; Art and Cultural Informatics; Design, Technology, and Society; Data Analytics and Information Visualization; Cognitive Science and Language Processing.

Informatics website (https://informatics.ischool.illinois.edu/faculty-affiliates/)
Informatics Faculty Affiliates

Prospective students may contact:
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GSD Class Schedule (https://courses.illinois.edu/schedule/DEFAULT/GSD/)

Game Studies Design Courses

GSD 101 Introduction to Game Studies and Design credit: 3 Hours. (https://courses.illinois.edu/schedule/terms/GSD/101/)
This broad survey course will provide students across campus an introduction to interdisciplinary game studies, covering both historical/social perspectives and game design. It will explore humanities, social science understandings of play, and the social contexts from which our games and gaming practices arise, as well as the development and consequences of gaming cultures. This course will serve as a broad introduction to issues covered in greater depth in upper-level courses available for students pursuing an Undergraduate Minor in Game Studies & Design.

GSD 102 Introduction to the Videogame Industry credit: 3 Hours. (https://courses.illinois.edu/schedule/terms/GSD/102/)
Designed to introduce individuals to the Video Game Industry, its history, current status, processes and future. It includes a survey of the positions and information about how to prepare to enter the Industry.

GSD 103 The Basics of Game Design credit: 3 Hours. (https://courses.illinois.edu/schedule/terms/GSD/103/)
Will introduce you to the tools and principles of game design, as well as the history of game studies and the maker movement. You will learn some of the introductory tools and techniques for rapid prototyping along with exploring games, their history, impacts, and design.

GSD 190 Explorations in Games credit: 1 to 3 Hours. (https://courses.illinois.edu/schedule/terms/GSD/190/)
Exploratory study or skills-based instruction in an emerging or special topic related to Game Studies and Design not covered in normal course offerings. Approved for Letter and S/U grading. May be repeated if topics vary. Prerequisite: Consent of instructor. Other prerequisites as specified for each topic offering. See Class Schedule.

GSD 199 Individual Study credit: 0 to 3 Hours. (https://courses.illinois.edu/schedule/terms/GSD/199/)
Individual study in a subject related to game studies & design not covered in normal course offerings. Approved for Letter and S/U grading. May be repeated in separate terms to a maximum of 6 hours. Prerequisite: Consent of Instructor. Restricted to Freshmen and Sophomores.

GSD 202 Let’s Play. Understanding the Role of Play in Life and Art credit: 3 Hours. (https://courses.illinois.edu/schedule/terms/GSD/202/)
Explores the ways that play is integrated into our socio-cultural fabric. Students will develop a broad understanding of play in different contexts: its history, play and nature, play in human development, learning, play spaces, games, art, and in futurist thinking. Chief among the goals for the course is an emphasis on play as a fundamental and enriching force for people of all ages, and something to cultivate in life and in art.

GSD 390 Special Topics in Game Studies & Design credit: 0 to 3 Hours. (https://courses.illinois.edu/schedule/terms/GSD/390/)
Advanced study or skills-based instruction in an emerging or special topic related to Game Studies and Design not covered in normal course offerings. Approved for Letter and S/U grading. May be repeated if topics vary. Prerequisite: Consent of instructor. Other prerequisites as specified for each topic offering. See Class Schedule.

GSD 399 Advanced Individual Study credit: 0 to 3 Hours. (https://courses.illinois.edu/schedule/terms/GSD/399/)
Advanced individual study in a subject related to game studies & design not covered in normal course offerings. Approved for Letter and S/U grading. May be repeated in separate terms to a maximum of 6 hours. Prerequisite: Consent of Instructor. Restricted to Juniors and Seniors.

GSD 403 An Introduction to Top Down Video Game Design credit: 3 Hours. (https://courses.illinois.edu/schedule/terms/GSD/403/)
The emphasis of this course is on developing an understanding of top down video game design using the various design methodologies and tools introduced in class. Students will form small groups (4-6) and work on their own design within a selected genre (to be determined at the beginning of the semester). Areas of focus include high level design vision, audience evaluation, User Interface and its impact on the design, iteration of a series of design documents (high, medium and low level) and the team dynamics of communication, critique and integration. The goal of the class is to have the small teams use the concepts and the tools taught in class to create a complete design document that will be cataloged for later use. 3 undergraduate hours. 3 graduate hours.
GSD 405  Introduction to the Video Game Development Process  credit: 3 Hours. ([https://courses.illinois.edu/schedule/terms/GSD/405/](https://courses.illinois.edu/schedule/terms/GSD/405/))
The emphasis of this course is understanding the video game development process as seen in current Game Studios. The course will focus on key elements of the process including the development timeline, scheduling, prototyping, iteration, QA, game builds and player research. The goal will be to take a design document from a catalog of designs that have already been created and implement one or more of them using the game development process. 3 undergraduate hours. 3 graduate hours. Credit is not given for GSD 405 and INFO 490 DC "The Video Game Dev Process" sections.

GSD 409  Design & Programming of Narrative Games & Simulations  credit: 3 or 4 Hours. ([https://courses.illinois.edu/schedule/terms/GSD/409/](https://courses.illinois.edu/schedule/terms/GSD/409/))
Introduction to the narrative design process for the authoring of text-based digital games and simulations. You will become proficient in Inform 7, a programming language and design system for parser-based interactive fiction (IF). By the end of the semester you will have developed a game or literary work of IF and made a substantive contribution to a collaborative project. No prior programming knowledge is required for students to be successful in the course. Students will be expected to bring a laptop to class. Please note that this course teaches design and programming techniques for "parser-based" interactive fiction, and does not cover Twine, or other hyper-text based interactive narrative systems. 3 undergraduate hours. 4 graduate hours. Credit is not given for GSD 409 and INFO 490 JP, JPU or JPG "Design & Prog Text Based Games" sections.

GSD 411  Interactive Fiction with Twine  credit: 3 or 4 Hours. ([https://courses.illinois.edu/schedule/terms/GSD/411/](https://courses.illinois.edu/schedule/terms/GSD/411/))
This studio course explores the intersection of interactivity and the written word—encompassing fiction, nonfiction, and poetry. Although many of the works examined in the course contain gameplay mechanics, the course's focus is on the expressive possibilities of interactive storytelling. Students will create hypertext narratives using Twine software. No prior programming experience is assumed. 3 undergraduate hours. 4 graduate hours.

GSD 490  Advanced Special Topics in Game Studies & Design  credit: 0 to 4 Hours. ([https://courses.illinois.edu/schedule/terms/GSD/490/](https://courses.illinois.edu/schedule/terms/GSD/490/))
Topics of current interest. Advanced study in an emerging or special topic related to Game Studies and Design not covered in normal course offerings. 1 to 4 undergraduate hours. 1 to 4 graduate hours. May be repeated if topics vary. Prerequisite: Consent of instructor. Other prerequisites as specified for each topic offering. See Class Schedule.

GSD 500  Colloquium in Game Studies & Design  credit: 0 to 1 Hours. ([https://courses.illinois.edu/schedule/terms/GSD/500/](https://courses.illinois.edu/schedule/terms/GSD/500/))
This once weekly orientation to graduate study in games studies and game design at the University of Illinois will be offered in fall semesters and will feature presentations of research and professional activities by faculty, advanced graduate students, and staff who will share their game-related research and design projects and provide students with a broad introduction to critical, theoretical and methodological approaches to the field. Some sessions will meet in labs and makerspaces around campus, familiarizing students with facilities and support services available to them for their own research and design projects. Students are required to take this course once for credit. Graduate students enrolled in the Graduate Minor will be expected to return to the seminar as a guest speaker near the end of their program, to share their work. 0 to 1 graduate hours. No professional credit. Approved for S/U grading only. May be repeated for 1 credit only once, or for 0 credit multiple times.

GSD 503  Seminar in Game Design  credit: 4 Hours. ([https://courses.illinois.edu/schedule/terms/GSD/503/](https://courses.illinois.edu/schedule/terms/GSD/503/))
This team-taught seminar provides students an in-depth exploration of game design methodologies across a range of modalities (board games, interactive narrative games, role-playing games, video games, escape rooms). This course is meant to create an intellectual community for game studies minors whose main interest is in the design and development of games, either by themselves, or with applications in their own disciplinary areas. Guest speakers from participating units across campus will present their work as it pertains to game design and development. Graduate level readings will address contemporary game design challenges. Students who take this course as part of their minor degree will be expected to return to the seminar as a guest speaker near the end of their program, to share their game design accomplishments or ongoing work. 4 graduate hours. No professional credit.

GSD 504  Seminar in Game Studies  credit: 4 Hours. ([https://courses.illinois.edu/schedule/terms/GSD/504/](https://courses.illinois.edu/schedule/terms/GSD/504/))
This team-taught seminar provides students an in-depth exploration of significant areas of social, psychological, historical, and critical game studies, focusing on theoretical approaches, methodological issues and aspects of contemporary game studies research. This course is intended to create an intellectual community for game studies minors whose main interest is research on or through games, rather than on the design and development of games. Guest speakers from participating academic units will help to moderate interdisciplinary a series of discussions on a range of theoretical methodological issues pertinent to contemporary academic game studies research. Graduate students who take this course as part of their minor degree will be expected to return to the seminar as a guest speaker near the end of their program, to share their research. 4 graduate hours. No professional credit.

GSD 590  Special Topics in Game Studies & Design  credit: 1 to 4 Hours. ([https://courses.illinois.edu/schedule/terms/GSD/590/](https://courses.illinois.edu/schedule/terms/GSD/590/))
Allows for affiliated Game Studies & Design faculty to propose and offer new courses on emerging and special topics of immediate interest. Students will experience an in-depth exploration of significant and emerging areas of social, psychological, historical, and critical game studies, focusing on theoretical approaches, methodological issues and aspects of contemporary game studies research and/or design. 1 to 4 graduate hours. No professional credit.

GSD 597  Independent Study in Game Studies & Design  credit: 1 to 4 Hours. ([https://courses.illinois.edu/schedule/terms/GSD/597/](https://courses.illinois.edu/schedule/terms/GSD/597/))
Advanced individual study in a subject related to Game Studies and Design not covered in normal course offerings. Project examples include comprehensive literature reviews on a topic of special or emerging interest, small research projects (e.g. surveys or play-testing experiments), development projects (e.g. building a game based on a design developed as part of another course), or other study approved by the instructor. Pre-approval is required and an approved advisor must commit to supervise the independent study. 1 to 4 graduate hours. No professional credit.

INFO Class Schedule ([https://courses.illinois.edu/schedule/DEFAULT/DEFAULT/INFO/](https://courses.illinois.edu/schedule/DEFAULT/DEFAULT/INFO/))
Informatics Courses

INFO 102  Little Bits to Big Ideas  credit: 4 Hours. (https://courses.illinois.edu/schedule/terms/INFO/102/)
Broad introduction to the nature, capabilities, and limitations of computing. Topics range from the way data is represented and stored, to the way today's computers work, to the general ideas of algorithms and computational efficiency, to the future of computing. Covers "Great Ideas" across various areas of the field, including, for example, cryptography and internet security, problem solving, modeling and simulation, and artificial intelligence. Same as CS 102.

INFO 199  Undergraduate Open Seminar  credit: 1 to 3 Hours. (https://courses.illinois.edu/schedule/terms/INFO/199/)
May be repeated in separate terms to a maximum of 6 hours. Prerequisite: Consent of instructor.

INFO 202  Social Aspects Info Tech  credit: 3 Hours. (https://courses.illinois.edu/schedule/terms/INFO/202/)
Same as IS 202 and MACS 202. See IS 202.
This course satisfies the General Education Criteria for:
Social Beh Sci - Soc Sci

INFO 303  Writing Across Media  credit: 3 Hours. (https://courses.illinois.edu/schedule/terms/INFO/303/)
The ability to communicate effectively in multiple types of media is a crucial part of literacy in our society. In this course, students will explore the intersections of various media: print, film, images, sound, etc.
Students will consider the ways in which writing—as an object and as a practice—is shaped by multimodal interactions. Also integrates practical activities with broader theoretical issues in order to provide effective strategies for designing multimedia presentations, projects, and texts that integrate photography, video, and sound. Same as WRIT 303.
This course satisfies the General Education Criteria for:
Advanced Composition

INFO 310  Computing in the Humanities  credit: 3 Hours. (https://courses.illinois.edu/schedule/terms/INFO/310/)
Same as IS 310. See IS 310.

INFO 325  Social Media and Global Change  credit: 3 Hours. (https://courses.illinois.edu/schedule/terms/INFO/325/)
Same as AFST 325, ASST 325, EPOL 325, EPS 325, EURO 325, LAST 325, REES 325, and SAME 325. See EPOL 325.

INFO 326  New Media, Culture & Society  credit: 3 Hours. (https://courses.illinois.edu/schedule/terms/INFO/326/)
Same as MACS 326. See MACS 326.

INFO 333  User Experience Design In Action  credit: 3 Hours. (https://courses.illinois.edu/schedule/terms/INFO/333/)
Introduces you to principles and techniques via several approaches to user experience design. We'll explore UX from different angles, including visual and sensory components, infrastructure and data, and social science evaluation and research methods. Along the way students tackle hands-on assignments that relate to tried-and-true methods, like rapid prototyping, usability or multimodal communication, as well as emergent areas such as AI-based generation or interactive data visualization. Prerequisite: Restricted to sophomore standing or above.

INFO 345  Digital & Gender Cultures  credit: 3 Hours. (https://courses.illinois.edu/schedule/terms/INFO/345/)
Same as GWS 345, MACS 345, and SOC 345. See MACS 345.

INFO 349  Individual Study  credit: 0 to 3 Hours. (https://courses.illinois.edu/schedule/terms/INFO/349/)
Individual study in a subject related to informatics not covered in normal course offerings. Approved for Letter and S/U grading. May be repeated in separate terms to a maximum of 6 hours. Prerequisite: Consent of instructor.

INFO 407  Introduction to Programming Python for Data Science  credit: 3 Hours. (https://courses.illinois.edu/schedule/terms/INFO/407/)
For students who want to learn about solving problems common in data sciences but have little or no programming experience. The class is asynchronous (students can access material on-line but within specified timeframes) and taught online. Data Science lies at the intersection of statistics and computer science and focuses on extracting information from data. This class will immerse students on topics of software construction, design, programming paradigms and the semantic and syntax of the Python language and then focus on some of the necessary workflows to move raw data into information. The class will explore common Python modules (libraries) used in data science, natural language processing, statistics, mathematics, data management (acquiring, cleaning, reshaping, organizing, persisting) and visualizations. 3 undergraduate hours. 3 graduate hours. Credit is not given toward graduation for BOTH INFO 407 and INFO 490 MH "Intro to Prog for the Data Science" sections.

INFO 415  Makerspace: Open Studio  credit: 3 or 4 Hours. (https://courses.illinois.edu/schedule/terms/INFO/415/)
Introduces learners to a variety of rapid prototyping and fabrication techniques in collaboration with the CU Community Fab Lab. Weekly class lecture will introduce students to trends and ideas in Makerspaces, Peer-to-Peer learning, design processes, creativity, computational thinking, and practicing makers. Each week students will be provided a general project prompt and set to work with a tool area in response to a simple design exploration challenge. Over the course of the semester they will have an opportunity to become familiar with the basics of several advanced small-scale manufacturing tools, such as 3D printers, laser engravers, digital embroidery machines, graphic drawing tablets and small board electronics. The class will have both group and independent work and make use of an online portal for assignment hand-in and peer-feedback. Please note that this course will emphasize self-guided learning and time management, students will need to rely on online tutorials and information resources to explore methods and complete much of the work in a rapid-response fashion; students will need to come into FabLab open hours outside of normal lab times to complete projects. Projects will be small and contained, in order to allow for exposure to several tools and mediums. Students who have taken a different Makerspace course at the FabLab previously are eligible to participate in this class, but it is also not a requirement. Graduate students will have an additional documentation project component emphasizing digital literacy. Additional fees may apply. See Class Schedule. 3 undergraduate hours. 4 graduate hours. Credit is not given for INFO 415 and INFO 490 ALU/ALG "Makerspace: Open Studio" sections.
INFO 416  Makerspace: Game Studies  credit: 3 or 4 Hours. (https://courses.illinois.edu/schedule/terms/INFO/416/)
A foray into game studies via makerspace production mediums. Students will study the role of play, tinkering and gaming in design, research and innovation and be challenged to learn a variety of makerspace production tools and techniques to create games. This course will include three major components (1) physical board game design, (2) introductory computer game design and (3) investigation into the narrative themes, artistic production, interaction mechanics and culture that make games engaging. During the course, students will prototype both playable board and video games, followed by iterating through to a final version of a game of their choice. Class will meet in the CU Community Fab Lab in Art Annex II. Students who have taken a different makerspace class before are encouraged to enroll. Additional fees may apply. See Class Schedule. 3 undergraduate hours. 4 graduate hours. Credit is not given for INFO 416 and INFO 490 A/AG "Makerspace: Game Studies" sections.

INFO 418  Makerspace: Escape Rooms  credit: 3 or 4 Hours. (https://courses.illinois.edu/schedule/terms/INFO/418/)
This course will explore the intersection of storytelling, interaction design, and user experience through the design of escape rooms. In the past couple years escape rooms have been on the rise, changing from simple locked boxes in an open room to complex adventures spanning multiple rooms involving electronics, sound design, storytelling, and even live actors. This class will be primarily focusing on the manufacturing and electronics work that goes into making an immersive escape room experience. Over the span of the course, students will become familiar with the basics of several advanced small-scale manufacturing tools, such as laser engravers, electronic cutters, and 3D printers/scanners. They will also learn how to program small-board electronics (Arduinos and IoT boards, servos, electronic locks, and/or lights), and incorporate them meaningfully into puzzles in order to achieve client’s goals. Students will design, prototype, playtest, and iterate collaboratively on the puzzles and interactive elements. 3 undergraduate hours. 4 graduate hours. Credit is not given for INFO 418 and INFO 490 B, BG, ERU or ERG "Makerspace: Escape rooms" sections.

INFO 424  Musical Informatics  credit: 3 or 4 Hours. (https://courses.illinois.edu/schedule/terms/INFO/424/)
A 21st century approach to music theory: fundamental elements of music illustrated through logical and mathematical concepts, unencumbered by stylistic considerations. Defines the internal structure of sounds and presents a few general methods of organizing them into complex compositions. Intended for musicians having limited familiarity with mathematics, as well as scientifically inclined students with little musical background. 3 undergraduate hours. 4 graduate hours.

INFO 427  Data, Machines and the Python  credit: 3 Hours. (https://courses.illinois.edu/schedule/terms/INFO/427/)
A continuation to the introductory course on Data Science (INFO 407). This advanced course on Data Science is completely taught online and scheduled asynchronously (you decide where it best fits in your week). The course consists of several tracks including Machine learning and advanced Python skills. There will be lessons that guide you to learn advanced techniques in data science and you will also be introduced to machine learning algorithms. In addition, there will be a few lessons that help you advance your Python knowledge and software development skills. This course can mainly be considered as an applied course where you will learn by doing. In many cases, you will first write a reduced implementation before using an established library. The second half of the course will be focused on data driven individual projects along with weekly lessons. 3 undergraduate hours. 3 graduate hours. Credit is not given for INFO 427 and INFO 490 MH2 "Data, Machines and the Python" sections. Prerequisite: Students should have either taken INFO 407; OR Have at least 1 year of programming experience using Python; OR Be comfortable with NumPy, Pandas, Matplotlib, NLTK; OR Have a strong ability and passion for learning. Junior, Senior or Graduate standing.
INFO 555  Advanced Educational Technologies for Engagement and Interactive Learning  credit: 4 Hours. (https://courses.illinois.edu/schedule/terms/INFO/555/)
Same as CI 555 and EPSY 555. See EPSY 555.

INFO 590  Advanced Special Topics  credit: 1 to 4 Hours. (https://courses.illinois.edu/schedule/terms/INFO/590/)
Subject offerings of new and developing areas of knowledge in Informatics, intended to augment existing curriculum. See Class Schedule for specific topics and prerequisites. 1 to 4 graduate hours. No professional credit. May be repeated if topics vary. Prerequisite: Graduate Student Standing.

INFO 591  Grad Bioinformatics Seminar  credit: 0 to 2 Hours. (https://courses.illinois.edu/schedule/terms/INFO/591/)
This seminar series focuses on research in the field of bioinformatics and computational biology. Same as ANSC 591 and CPSC 591. 0 to 2 graduate hours. No professional credit. Approved for Letter and S/U grading. May be repeated in separate terms to a maximum of 4 hours. Prerequisite: Consent of instructor.

INFO 597  Individual Study  credit: 2 to 4 Hours. (https://courses.illinois.edu/schedule/terms/INFO/597/)
Individual study in a subject related to informatics not covered in normal course offerings. May be repeated in same term for a maximum of 8 hours or separate terms for a maximum of 16 hours if topics vary. Prerequisite: Consent of instructor.

INFO 599  Thesis Research  credit: 0 to 16 Hours. (https://courses.illinois.edu/schedule/terms/INFO/599/)
Research for Ph.D. thesis. May be repeated in separate terms. Prerequisite: Instructor approval required.