



GAME

Brock University & Niagara College

Program Handbook

2023-2024



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Foreword

About this Handbook

Welcome to the GAME program, offered jointly by Brock University and Niagara College. This handbook summarizes important information and advice for students enrolled in the Game Design (BA) and Game Programming (BSc) streams.

Important Info for 2023 - 2024

Some elements of this Handbook, specifically those topics related to on campus amenities and in-person learning, are superseded by Brock University and Niagara College policies related to the pandemic.

1. Welcome

From the Director of the GAME Program (Robson De Grande, Brock University)



Welcome to the GAME program! We are so excited to be offering this special partnership between Brock University and Niagara College. As the Director of the GAME program, my role is to support students in the GAME program, in part by interfacing between the three cooperating units in the GAME program (Computer Science and Digital Humanities at Brock University and the School of Media at Niagara College), as well as the many other academic and ancillary units which contribute to the program.

One of the unique aspects of the GAME program is a focus on the academic study of games - developing a broad understanding related to the history of video games, its discourses, underlying aesthetics, and the psychology of various forms of gameplay, to name but a few of the scholarly topics you will cover in the courses BA and BSc students take together. Your focus on 'video games' as an academic area of study will broaden and deepen your understanding of games, helping you to

make better informed choices when it comes to the design of your own video games.

I wish you all the best in the GAME program. Please don't hesitate to reach out and introduce yourself. Building a strong sense of community between students, faculty, staff, and industry partners is an important goal of the GAME program.

From the Chair of the Department of Digital Humanities (Aaron Mauro, Brock University)



Congratulations on your acceptance to the GAME program! This unique program blends theory and practice to provide you with the best of both worlds from a university and college education. The courses you take through the Centre for Digital Humanities (CDH) will largely focus on contextual knowledges and theoretical frameworks relevant to game design. These include the history of games, genres, aesthetic theory, narrative, game design paradigms, psychology, user-experience design, effective communication, and project management, to name a few. Throughout your time in the CDH, you will use these concepts to inform your game design decisions.

In addition to courses, the CDH is home to a number of collaborative computer labs. These labs provide you with access to the hardware and software required to complete course assignments, but also provide a space for collaborating with, and getting to know, your fellow students.

The CDH staff and faculty are here to help you succeed in the program. Please do not hesitate to get in touch with us for anything at all. I look forward to working with you over the coming years!

From the Chair of Computer Science (Brian Ross, Brock University)



Welcome to the GAME program! You are about to begin an unforgettable time in your life. During your studies, you will be exposed to a great number of concepts and skills in game development, asset creation, computer technology, team-based

development, and the game industry in general.

Those in the GAME programming stream will learn the fundamentals of programming, computer science theory, and mathematics, all of which are important in

both video game development and the wider computing industry. Just as important are the memories and friendships you will make. University is a special and unforgettable experience, and I hope that your memories of your time in the program will be ones you will look fondly upon during the rest of your life. I wish you all the best during your studies.

From the Dean, School of Media, Trades and Technology (Charles Kopun, Niagara College)

On behalf of the faculty and staff of Media Studies, it is a pleasure to welcome you to Niagara College where you will complete half of your game degree/diploma program. You have chosen a very exciting, challenging, and rewarding career path. Studying gaming concurrently at Brock University and Niagara College is about discovery and collaboration - the discovery of methods, processes and approaches, possibilities and potential, and collaborations among students and institutions. The aim of the GAME program is to develop your ability, skill, and critical faculties by means of thoughtful study and practical outcomes.

Niagara College's gaming courses have established an exemplary reputation based on their "hands-on" approach to education. Concepts learned in a classroom setting are reinforced by lab activities completed with

industry-standard computers and software as taught by industry-experienced and dedicated faculty.

I wish you success in your studies and an exciting future in the gaming world.

From the Academic Advisors (Elizabeth Maddeaux and Donna Phelps, Brock University)

Welcome and congratulations on being in the GAME program.

Elizabeth Maddeaux (BA GAME Design) and Donna Phelps (BSc GAME Programming) are your Academic Advisors (please speak with the Advisor assigned to your program). For contact info, please visit: <https://brocku.ca/game/contact-us/>



As Advisors, our role is to assist students in progressing through their degrees and overcoming any challenges along the way. The program you

are enrolled in is very structured, meaning your courses are pretty much planned and mapped out for you.

However, even though the courses are planned out we still strongly encourage GAME students to register early and meet with an Academic Advisor to ensure that your program requirements are met. You are going to hear about the idea of a "cohort" – this means that you are following the structured plan set for you with the group you start with; it is important that any deviation from your academic plan will need to be carefully discussed and approved. We are here to help and can make time to meet with you to discuss any concerns you are having.

From the Academic Advisor (Jessica Cameron, Niagara College)



Jessica Cameron is your Academic Advisor at Niagara College (NC). Your Brock University and Niagara College Academic Advisors work closely to support your progress through the BA GAME Design and BSc GAME Programming programs. Since you are enrolled at two institutions, you have

the benefit of being able to access resources at both Brock and NC. For guidance on NC supports and programming, please connect with your NC Academic Advisor.

2. Introduction

Niagara College/Brock University Partnership Overview and the Objectives of GAME

The GAME program is a joint initiative between Brock University and Niagara College that was proposed as a means of integrating study between Brock's Interactive Arts and Science (IASC) and Computer Science (COSC) programs with concurrent study in Niagara College's Game Development (BTGD) program.

This unique partnership allows students to earn both a Bachelor's degree and an Advanced Diploma in Game Development over four years.

As a student in the GAME program, you will experience the diverse conceptual, creative, and practical frameworks within which computer games are situated and are produced. You will become capable of critical, procedural and technical evaluation of game expressions and their contexts. During your studies you will develop specialized understandings and practical capacities related to many aspects of your chosen domains of study. You will have opportunities to demonstrate your abilities through critical and methodological analysis as well as through the prototyping of games, leading to a portfolio of work.

As a student in either the design or programming pathways of the GAME program, you will benefit from an educational partnership that combines the theoretical with the applied.

The GAME program will help place you at the forefront of a rapidly evolving industry that is both significant within the landscape of contemporary culture and an economic juggernaut, contributing an estimated \$5.5 billion to the Canadian economy in 2020.

The partners of the GAME program in the Niagara Region have identified interactive media as being a major driver of the local economy. They have worked to build an economic cluster that is focused on retaining and attracting talent, entrepreneurs, and content producers right here in Niagara.

Computer Recommendations

A number of courses in the GAME program rely heavily on design and visualization software that require high end graphics processing.

Although students will have access to computer labs at both Brock University and Niagara College, space and access times may be limited. For the Centre for Digital Humanities labs at Brock University, check for availability and monitor peak time forecasts at:

labs.cfdh.ca

Students wishing to use their own laptop or desktop for course work should note the following minimum operating requirements for running software. Free student software licences may be available directly from vendors such as Autodesk.

The following requirements specify the *minimum* laptop system suitable for GAME students:

	PC	Mac
Processor	64 bit Intel or AMD Processor	64 bit Intel Processor ⁽¹⁾
RAM	16GB RAM	16GB RAM
Hard Drive	500GB HD Space	500GB HD Space
OS	Windows 10	Windows 10 ⁽²⁾ (Through Bootcamp/Parallels)
GPU	Read the following: www.autodesk.com/graphics-hardware	Read the following: www.autodesk.com/graphics-hardware
Accessories	3 Button Mouse or Trackpad	3 Button Mouse

** Minimum requirements are based on the system requirements of third-party software and may change without warning. Brock University is not responsible for changes in technical requirements and students should confirm these specifications at the time of purchase*
(1) Bootcamp is not available on Apple Silicone M1 chip. Note that some software runs on M1 through Rosetta 2 emulation and therefore may have limited features or support.
(2) Some required software does not run on macOS (e.g., Autodesk 3DS Max).

4. Logistical Information

Registration

Most of the courses in the GAME program are core courses. Students are normally required to complete these courses in pre-determined terms. Due to the cohort-based nature of the GAME program, you will work collaboratively in certain courses with your peers on game projects.

As a general guideline, make sure that you register for your courses early. This particularly applies to courses that are not Niagara College courses or IASC or COSC Brock University courses. Registering early will guarantee a spot in those courses before they fill up.

Course registration is handled exclusively through Brock University, regardless of whether a course is offered at Niagara College or Brock University. A list of timetables and registration guides for Brock University can be found at:

<https://brocku.ca/registrar/guides-and-timetable>.

Note that courses at Niagara College appear in the system with their corresponding Brock course number (see Chapter 5 of this Handbook). If such a course is part of both streams, then Section 1 (S1) is for GAME BA

students and Section 2 (S2) is for GAME BSc students. Make sure that you choose the correct section.

Reading Week

A typical school year at both Niagara College and Brock University features two reading weeks, one in the Fall term and one in the Winter term. For students enrolled in the GAME program, the Brock University reading week schedule is followed.

Snow Days

Should a class be cancelled due to inclement weather, any rescheduled and/or make-up class will follow the regulations of the institution hosting the course.

Student Grade Release

Final grades for students are released through the Brock system and can be viewed through the student self-serve portal on a student's my.brocku.ca page. Grades for courses at Niagara College are added to the Brock student portal once the course marks have been finalized.

Academic Advising

Academic advising for students enrolled in the GAME program is primarily facilitated through Brock University. (Please refer to Chapter 1 of the GAME Handbook which includes welcome messages from the academic advisors.)

Since the GAME programs are offered jointly by Brock University and Niagara College, you will also have access to an academic advisor at Niagara College. Your Niagara College advisor works in partnership with your Brock advisors to provide information about your Niagara College program, connect you with additional college supports, and provide guidance for successful progression towards graduation.

Classroom Accommodations

Students should notify both Brock University and Niagara College about any needed learning accommodations. Students should also inform their instructors at Niagara College so they can facilitate the approved accommodations as early as possible. For more information:

<https://brocku.ca/health-wellness-accessibility/sas/>

Exams

Due to the differences in semester composition between Niagara College and Brock University, the course and exam schedule will vary between the two institutions. At Brock University, there will be 12 weeks of classes followed by a two-week exam period. At Niagara College, exams (and final projects), are generally incorporated into the program's full 14-week semester schedule. Note: Your Niagara College GAME courses will continue during Brock's exam period.

Public Transit Information

Bus service from Brock University to Niagara College for the GAME program is coordinated by Niagara Regional Transit: routes 70/75 or 70A/75A (Express). A full schedule can be found at:

<https://www.niagararegion.ca/transit/routes.aspx>

Bus passes are administered by Brock University and the Brock University Student's Union. The average transit time between Brock University and Niagara College's Welland campus is about 30 minutes, weather and traffic permitting.

Parking Information



Parking at both campuses is available by purchasing a single parking pass at Brock University. Once you have bought a Brock parking pass you will be given a tag enabling you to park at Niagara College without further payment.

5. Program Pathways

About Course Codes

Two course codes are associated with all courses taught at Niagara College. The first code is used at Niagara College and the second code is used at Brock University, e.g., the course *BTGD 9811/1P11 - Fundamental 3D and Multimedia Technologies* is known as *BTGD 9811* at Niagara College and as *BTGD 1P11* at Brock University.

The course lists for both programs are available here:

<https://brocku.ca/game/ba-game-design/>
<https://brocku.ca/game/bsc-game-programming/>

Course Descriptions

The course descriptions for all courses in the GAME program can be found in Brock University's Undergraduate Calendar:

<https://brocku.ca/webcal/index.php>

6. Learning Outcomes

The Undergraduate Degree Level Expectations (UDLEs) below are grouped into six major areas. These are the general expectations for every undergraduate student at Brock University.

Following the UDLEs we have listed the program outcomes for the two GAME program streams: BA Game Design/Advanced Diploma Game Development and the BSc Game Programming/Advanced Diploma Game Development. Each course addresses a selection of the GAME program outcomes in addition to course-specific outcomes.

It is important that students familiarize themselves with the program outcomes of for their stream. The program outcomes can serve as benchmarks and milestones through which a student can gauge one's progress in their studies.

Brock University UDLEs

A Graduate of Brock University will be able to demonstrate

1. A Depth and Breadth of Knowledge of:

- General knowledge of key concepts

- Broad understanding of major fields
- Ability to gather and interpret information
- Detailed knowledge in an area of the discipline
- Critical thinking and analytical skills
- Apply learning from outside discipline

2. Knowledge of Methodologies

- Apply methods of inquiry to:
 - Evaluate different approaches
 - Use these methods to devise and sustain arguments or solve problems

3. Application of Knowledge

- Review, present and interpret information in order to:
 - Develop lines of argument
 - Make sound arguments
- Use technologies to:
 - Analyze information
 - Evaluate the appropriateness of approaches to solving problems
 - Propose solutions
 - Make use of scholarly sources

4. Communication Skills

- Communicate accurately and reliably, orally and in writing to a range of audiences.

5. Awareness of Limits of Knowledge

- Understand limits to own knowledge and how this might influence their analyses and interpretation

6. Autonomy and Professional Capacity

- Qualities and transferrable skills for further use:
 - Exercise of personal responsibility
 - Working effectively with others
 - Ability to identify and address own personal needs
 - Behaviour consistent with academic integrity and social responsibility

GAME Program Outcomes - BA Game Design/Advanced Diploma Game Development

Upon the completion of the program, graduates will be able to:

- Define and analyze the essential characteristics of play, games and narrative
- Differentiate among game genres, game purposes and design methods

- Examine and generalize from theory and discourse related to games and other media
- Relate historical and contemporary notions of games and related media
- Assess social and cultural impacts of games and other interactive media
- Understand economic and business dimensions of games
- Demonstrate detailed knowledge of formal concepts, production methods and tools related to digital imaging, multimedia, interface design, 3D modeling, animation, cinematics and cutscenes, visual effects, sound design, level design and scripting
- Apply critical thinking in the analysis of conceptual and creative frameworks in computing, the arts and media
- Select optimal research sources and methods with which to examine and analyze games of all types, and place these within social, cultural and creative frameworks
- Interpret game, play and narrative structures and patterns as well as their uses and effects
- Integrate diverse concepts for the purpose of devising new forms of expression.
- Evaluate production methods, processes and strategies
- Choose game design strategies and patterns based on an analysis of past and present practices
- Devise unique game concepts, narratives, design patterns, mechanics and dynamics relevant to varied purposes and audiences
- Apply diverse prototyping methods
- Test and evaluate game concepts and mechanics
- Contribute to the creation of games on varied platforms through competent use of appropriate arts and technologies
- Select and apply effective pre-production and production methods (narration, design, asset creation, assembly) and software tools
- Articulate complex ideas, arguments, and concepts in oral presentations and in writing reports including game treatments and comprehensive design documentation
- Produce informed and inspired creative expression in the diverse framework of games
- Experiment with, test and evaluate of concepts in games in relation to other disciplines and practices to discover its capacities and limitations
- Recognize that games are rapidly transformed in unpredictable ways
- Maintain commitment to research and inquiry in support of independent learning to expand new knowledge in a constantly evolving field and collaboratively within a team in a variety of roles
- Define work commitments and meet production deadlines

- Interact respectfully with peers
- Provide leadership in areas of individual specialization
- Reflect upon the results of practice to generate insights into future conceptual and technical options and their iterations
- Adhere to the spirit of professional codes of conduct, (such as IGDA) with respect to legal, ethical, societal, environmental, health, safety, legal and cultural issues

GAME Program Outcomes - BSc Game Programming/Advanced Diploma Game Development

Upon the completion of the program, graduates will be able to:

- Define and analyze the essential characteristics of play, games and narrative
- Differentiate among game genres, game purposes and design methods
- Examine and generalize from theory and discourse related to games and other media
- Relate historical and contemporary notions of games and related media
- Assess social and cultural impacts of games and other interactive media
- Understand economic and business dimensions of games
- Demonstrate fluency with basic concepts, production methods and tools related to digital imaging, multimedia, 3D modeling, animation, level design and scripting
- Demonstrate detailed knowledge of algorithms, data structures, organization & architecture, databases, mathematics, operating systems, networking, programming languages, social & professional issues and software engineering to the development of games
- Select appropriate research sources and methods for the examination and analysis of games of within social, cultural and creative frameworks
- Analyze and solve problems in design and mobilization of game assets using varied computational approaches
- Design, implement, test and maintain game software for open-ended problems with evaluation based on predefined criteria considering safety, economic, cultural and societal issues
- Identify and apply appropriate resources including techniques and computing tools
- Apply diverse prototyping methods - Test and debug game mechanics
- Contribute to the creation of games on varied platforms through programming and implementation

- of 2D and 3D game engines, engineering of intelligent and graphics systems
- Articulate complex ideas, arguments, and concepts in oral presentations and in writing reports including comprehensive technical specifications and documentation
 - Produce well-structured and documented programming for games
 - Experiment with, test and evaluate of concepts in game programming in relation to other disciplines and practices to discover its capacities and limitations
 - Recognize that games and related computational methods are rapidly transformed in unpredictable ways
 - Maintain commitment to research and inquiry in support of independent learning to expand new knowledge in a constantly evolving field
 - Work independently and collaboratively within a team in a variety of roles
 - Define work commitments and meet production deadlines
 - Interact respectfully with peers
 - Provide leadership in areas of individual specialization
 - Reflect upon the results of practice to generate insights into future conceptual and technical options and their iterations
- Adhere to the spirit of professional codes of conduct, (such as IGDA, CIPS, ACM) with respect to legal, ethical, societal, environmental, health, safety, legal and cultural issues

7. Facilities

Brock University Design Studio (BUDS)

The Brock University Design Studio (BUDS) provides students across Brock with course-based opportunities to practice and hone their knowledge and skills within a real-world, collaborative, project-based production studio context that incorporates a service-learning orientation.

Modeled on the principles of project-based learning, BUDS serves as the vehicle through which interdisciplinary teams of students – leveraging a diverse array of instructional design, digital tool, and subject content expertise – collaborate on interactive design projects that are sponsored by community partners.

Computer Science Department Labs

Computer Science students (including GAME students) have access to three computer labs within the MacKenzie Chown complex which are managed by the department. These are equipped with computers running modern Intel processors and can boot into both Windows and Linux: The labs are also accessible during unscheduled lab times using proximity card access and are located at:

- MCJ301, 24 desktop computers, Windows/Linux (dual boot).
- MCJ310, 20 desktop computers, Windows/Linux (dual boot).
- MCD205, 48 desktop computer, 24” monitors, Windows/Linux (dual boot). Additional floating tables can be arranged for group work.

These lab computers have additional access to departmental teaching and research servers (as needed) and power outlets for laptops have been installed in designated sections within each of the labs.

The second level of MCJ Block also contains two general access computer labs maintained by Brock’s Information and Technology Services, as well as a few lecture and seminar rooms

Centre for Digital Humanities Labs

The Centre for Digital Humanities is located in the Thistle (TH) 269 hallway. The following labs are all equipped with high end Dell Precision workstations with Nvidia Quadro graphics cards. CDH Computers are unavailable Tuesday 4:00 - 6:00 AM and Saturday 4:00 - 7:30 AM for regular maintenance.

- TH 269 H, a fully equipped workspace for all GAME and IASC students. 24 workstations, laptop

workspace and game consoles. This lab is open 24/7 with Prox card access.

- TH 269 K, Quiet lab and Audio Recording Suite, 8 workstations.
- TH 269 J, a teaching lab with 24 workstations.
- TH A/B and G are studio spaces for 4th year GAME and IASC courses (15 seats each).

events run by Generator are encouraged as part of the IASC 3Q90 course.

School of Media (NC) Labs

Niagara College provides two state-of-the-art gaming labs fully equipped with high end gaming computers and a suite of software used throughout the gaming industry. Niagara College also has a media viewing room with three widescreen monitors to display game development progress with faculty and clients in a multiscreen interactive environment. Small class sizes enhance the experience in using leading industry art production and software development tools.

Generator/Innovate Niagara

The CDH and Niagara College frequently partner with the Generator, a digital media incubator, and its start-up companies in downtown St. Catharines. The Generator and its affiliated companies provide students with opportunities to meet and work with industry professionals. Attending workshops and networking

8. Extracurricular

Computer Science Club

Students enrolled in the GAME program may be interested in joining the Brock University Computer Science Club. The Computer Science Club is an organization of students dedicated to providing Brock students with an informational and social network of individuals interested in computer science. The club seeks to promote knowledge of, and interest in, computer science as well as allowing those interested in computer science to talk to each other and develop their skills in an expanding and in demand field.

The club has an office located at MCJ330 where members get together, a library of computer science books available to members, and regularly scheduled events for both fun and educational purposes.

Information about the Computer Science Club can be found on its website:

<http://www.brockcsc.ca/>.

Youth University

Youth University is non-profit department within Brock University which organizes summer camps and other programs for children and youth. These program nurture independence, develop social skills, and help children cultivate curiosity through exploration, education and discovery.

Youth University offers children and teens from grades 2 to 11 a variety of fun and informative summer workshops in which to learn and develop their skills and social connections. The unit employs a number of Brock students over the summer.

Students enrolled in the GAME program may be interested in assisting Youth University with programs, such as their junior and senior game development workshops as a way of contributing to the community, developing and demonstrating their skills, networking with other instructors and students, and building their résumés.

Students can find more information about Youth University at:

<http://www.brocku.ca/youth-university>.