

Borough of Manhattan Community College

The City University of New York

Department of Media Arts and Technology

### **3D Game Development**

MMP 271, Spring 2025

3 credits, 2 hours lecture, 2 hours lab

Tuesday 2pm - 5:40pm

199 Chambers Building, Room S608 (Makerspace)

Professor Owen Roberts

[oroberts@bmcc.cuny.edu](mailto:oroberts@bmcc.cuny.edu)

Office hours: Tuesday/Friday 10am - 11:30am on Zoom

### **Course Description**

This course introduces students to design and production practices used in the development of games and other interactive experiences using 3D graphics. The course will cover the fundamentals of 3D asset management, scene design, scripting, interactivity, sound design and other topics related to 3D design. The class will introduce students to production using a game engine such as Godot Engine, Unity or Unreal Engine. Students will learn the process of publishing games or 3D scenes as video games and other platforms which may include augmented reality, virtual reality or other 3D platforms. These topics will build on practices introduced in MMP 100 and other multimedia courses. The class assignments and evaluations are project based and students will produce at least three 3D scenes for one or more platforms and create documentation of the production process and finished scenes for use in a portfolio.

**Prerequisites:** MMP 100

### **Student Learning Outcomes**

<b>Description</b>	<b>Measurements</b>
1. Produce a digital experience using 3D graphics and design platforms	Class projects and final
2. Apply principles of interaction design to a 3D project	Class projects and final
3. Demonstrate the use of geometry, materials, lighting, textures and other components in a 3D software production environment	Class projects and final
4. Apply basic scripting for controls and interactivity in 3D environments	Class projects and final
5. Apply sound design principles and create sounds assets	Class projects and final
6. Prepare a concept presentation for a 3D design project	Final Project
7. Document the process and result of a 3D production project	Documentation blog

## General Education Learning Outcomes

<b>Description</b>	<b>Measurements</b>
<b>Communication Skills:</b> Students will be able to write, read, listen and speak critically and effectively	Class presentations, project documentation
<b>Quantitative Reasoning:</b> Students will be able to use quantitative skill and the concepts and methods of mathematics to solve problems.	Scripting lessons and assignments
<b>Arts &amp; Humanities:</b> Students will be able to develop knowledge and understanding of the arts and literature through critiques of works of art, music, theatre and literature.	Production and environment design history lessons and assignments
<b>Information &amp; Technology Literacy:</b> Students will be able to collect, evaluate and interpret information and effectively use information technologies.	Project and production assignments

## Course Details

### Required Text and Other Resources

This course has no required textbook. Open Educational Resources including readings, videos and tutorials will be assigned by the instructor.

## **Use of Technology**

Students will develop 3D environments on various platforms, which could include game engines like Unreal, Unity or Godot. Software such as Adobe Creative Suite, Blender and others will be used for 3D assets and graphics production. Software such as Audacity and other sound design programs will be used for audio production.

## **Requirements and Evaluation of Students**

- Three class projects: 20% each
- Final project: 30%
- Class participation: 10%

Class participation includes a development blog used to track progress during the semester and participation in user testing workshops throughout the semester in which students play or interact with each other's work and give feedback.

Students will use **Brightspace** to grade assignments. All grading and feedback from faculty will be on Brightspace. Login to Brightspace here: <https://brightspace.cuny.edu/d2l/home>

The **Open Lab** is used for posting assignments and course materials. A BMCC login is needed to access the Open Lab and join the course.

If you need your login information contact the BMCC Service Desk at 212-220-8379, [helpdesk@bmcc.cuny.edu](mailto:helpdesk@bmcc.cuny.edu), or Room S-141 (199 Chambers Street). You may also reset your password by going to <https://cunyportal.cuny.edu/> and clicking on "Account & Password Reset".

Tutorials are available on [LinkedIn Learning](#) on a variety of topics related to this class. Follow login instructions here: <https://servicedesk.bmcc.cuny.edu/TDClient/33/Portal/KB/ArticleDet?ID=1024>

## **Topics**

- Production platforms
- Asset management

- Scene and level design
- Scripting
- Sound design
- Animation
- Physics
- Interactivity
- Artificial intelligence
- Simulation
- Lighting, materials, shaders
- Documentation
- Digital publishing

## **BMCC Policies**

### **Class Participation**

Participation in the academic activity of each course is a significant component of the learning process and plays a major role in determining overall student academic achievement. Academic activities may include, but are not limited to, attending class, submitting assignments, engaging in in-class or online activities, taking exams, and/or participating in group work. Each instructor has the right to establish their own class participation policy, and it is each student's responsibility to be familiar with and follow the participation policies for each course.

### **BMCC Policy on Plagiarism and Academic Integrity Statement**

Plagiarism is the presentation of someone else's ideas, words or artistic, scientific, or technical work as one's own creation. Using the idea or work of another is permissible only when the original author is identified. Paraphrasing and summarizing, as well as direct quotations, require citations to the original source. Plagiarism may be intentional or unintentional. Lack of dishonest intent does not necessarily absolve a student of responsibility for plagiarism. Students who are unsure how and when to provide documentation are advised to consult with their instructors. The library has guides designed to help students to appropriately identify a cited work. The full policy can be found on BMCC's Web site, [www.bmcc.cuny.edu](http://www.bmcc.cuny.edu). For further information on integrity and behavior, please consult the college bulletin (also available online).

### **Gender Inclusivity**

BMCC community members have the right to use and be referred to according to their preferred name, title, and/or personal pronouns. Everyone also has the right to use all spaces according to their self-identification, including restrooms and locker rooms. To learn more about how to change your preferred name and affirm your gender identity at CUNY (including requesting a new ID card and/or email address), go here: <https://www.bmcc.cuny.edu/student-affairs/lgbtq/>

Anyone who has experienced harassment related to gender or sexual identification, who needs assistance, or who wishes to file a complaint, can contact the Office of Compliance and

Diversity: <https://www.bmcc.cuny.edu/about-bmcc/compliance-diversity/>

### **Free BMCC Student Support Services**

BMCC is committed to the health and well-being of all students. It is common for everyone to seek assistance at some point in their life, and there are free and confidential services on campus that can help.

### **Advocacy and Resource Center (ARC)**

<https://www.bmcc.cuny.edu/student-affairs/arc/> room S230, 212-220-8195, [arc@bmcc.cuny.edu](mailto:arc@bmcc.cuny.edu). If you are having problems with food or housing insecurity, finances, health insurance or anything else that might get in the way of your studies at BMCC, contact the Advocacy and Resource Center (formerly Single Stop) for assistance. Please contact us at [arc@bmcc.cuny.edu](mailto:arc@bmcc.cuny.edu), call 212-220-8195, or come by the office at room S230. You may also contact the Office of Student Affairs, S350, 212-220-8130, [studentaffairs@bmcc.cuny.edu](mailto:studentaffairs@bmcc.cuny.edu), for assistance.

### **Counseling Center**

[www.bmcc.cuny.edu/counseling](http://www.bmcc.cuny.edu/counseling), room S343, 212-220-8140, [counselingcenter@bmcc.cuny.edu](mailto:counselingcenter@bmcc.cuny.edu). Counselors assist students in addressing psychological and adjustment issues (i.e., depression, anxiety, and relationships) and can help with stress, time management and more. This is a free and confidential resource available to all BMCC students. We offer in-person, zoom and phone appointments. Appointments can be made by calling or filling out the form on the homepage.

### **Learning Resource Center: Tutoring and Other Academic Support**

<https://www.bmcc.cuny.edu/students/lrc/>, room S510 (LRC, Writing Center, ESL Lab, Reading Lab), S534 (Math Lab), and F511, 212-220-1383.

Participation in out-of-class academic support services contributes to the learning process and reinforces in-class learning. Students who attend tutoring have a higher pass rate in courses than students who do not attend tutoring. LRC services include in-person and online tutoring for most courses, and special supplemental instruction (SI) sessions for some select course sections. They also provide assistance with classroom technology. The LRC has academic coaches who help students improve their study skills.

### **Office of Accessibility**

[www.bmcc.cuny.edu/accessibility](http://www.bmcc.cuny.edu/accessibility), room N360 (accessible entrance: 77 Harrison Street), 212-220-8180, [accessibility@bmcc.cuny.edu](mailto:accessibility@bmcc.cuny.edu).

Students who need academic accommodations in connection with a disability must initiate the request with BMCC's Office of Accessibility (OA). Students need to register with the Office of Accessibility in order to officially disclose their disability status to the College and to determine eligibility for appropriate reasonable accommodations (including any prior IEPs or 504s). Please contact the OA at the start of the semester (or as soon as possible) to coordinate any accommodation request/s: [www.bmcc.cuny.edu/accessibility](http://www.bmcc.cuny.edu/accessibility)

### **Office of Compliance and Diversity**

<https://www.bmcc.cuny.edu/about-bmcc/compliance-diversity>, room S701, 212-220-1236.

BMCC is committed to promoting a diverse and inclusive learning environment free of unlawful discrimination/harassment, including sexual harassment, where all students are treated fairly. For information about BMCC's policies and resources, or to request additional assistance in this area, please visit or call the office, or email [olevy@bmcc.cuny.edu](mailto:olevy@bmcc.cuny.edu), or [twade@bmcc.cuny.edu](mailto:twade@bmcc.cuny.edu). If you need immediate assistance, please contact BMCC Public safety at 212-220-8080.