

FA298 Virtual Reality Showcase

Seminar Leader: Miles Chalcraft
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Office Hours: by appointment

Course Description

This virtual reality course provides an introduction to the basics of immersive technology. Students will learn to use an accessible VR social space to connect with others in virtual environments. They will use this platform to develop a personal showcase using 3D objects, photography, video, and sound, while simultaneously exploring how VR environments can be used as a space for presentation and performance.

Students will create and modify their own individual walk-through space using drag-and-drop resources. They will learn to create objects from freely available software, such as TinkerCAD, Blender and Meshroom and import and modify their own creations within their projects, allowing them to personalize their worlds. The course will also introduce students to the photographic process of photogrammetry for creating 3D representations of actual, real-world objects. Newly added to the course are modules on 360 immersive video, which will cover shooting, editing, converting, and uploading to VR glasses.

Throughout the course, students will engage in interactive activities on a networked VR platform, allowing them to combine and share assets with one another. By the end of the course, students will have a comprehensive understanding of the technology and skills necessary to create custom 3D virtual environments and have gained valuable insight into VR development and design, essential in fields such as game development, architecture, and product design.

Requirements

Students are expected to:

- Turn off phones during class time.
- Initiate appointments with the Professor or arts staff outside of class time.
- Always allocate extra time for work preparation and clean-up for independent production.
- Respond to emails from their professors in a timely manner.
- Inform their professors at the beginning of the semester if photos of student's identity, artwork, works in progress are NOT to be taken and / or used for Bard College Berlin.
- Remove all artworks, art materials, and / or any personal belongings before the end of the semester. Failure to remove works or return spaces clean and empty may result in final grade penalization. Donating unrequested artworks and / or art materials is not permitted and will still be considered student property, expected to be removed by your inspection deadline. Please contact Studio Arts Manager Joon Park for more information: j.park@berlin.bard.edu

Special requirements, accounts and expenditure

While a limited amount of VR headsets will be available for use in the course, if you do happen to own such a device yourself then you will find it beneficial to use it within the teaching sessions. If students have a personal laptop, then, depending on year and model, this may also prove to be useful for following technical instruction during class. Other than that, a useful piece of equipment when working with 3D is a 3 button mouse (Left, Right, Centre click wheel).

Required Accounts list

Students should provide for themselves free accounts for the following online software / resources:

- Steam (<https://store.steampowered.com/>)
- Resonite (<https://resonite.com/>)
- TinkerCAD (<https://www.tinkercad.com/>)
- SketchFab (<https://sketchfab.com/>)
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- **Useful Free Software:**
- Blender (<https://www.blender.org/>)
- Gimp (<https://www.gimp.org/>)
- Inkscape (<https://inkscape.org/>)

Academic Integrity

Bard College Berlin maintains the highest standards of academic integrity and expects students to adhere to these standards at all times. Instances in which students fail to meet the expected standards of academic integrity will be dealt with under the Code of Student Conduct, Section 14.3 (Academic Misconduct) in the Student Handbook.

Attendance

Attendance at all classes is a crucial part of the education offered by Bard College Berlin. To account for minor circumstances, two absences from twice-per-week courses or the equivalent (e.g. one absence from a once-per-week course) should not affect the participation grade or require documentation.

Bard College Berlin may not offer credit for any course in which a student has missed more than 30% of classes, regardless of the reasons for the absences. The full Bard College Berlin attendance policy can be found in the Student Handbook, Section 2.8.

Assessment

By the end of this course, students should have gained an introductory understanding of immersive 3D development and design, having equipped themselves with a variety of skills to build and integrate assets into a VR environment of their making.

Specifically, to obtain maximum grades, students will be able to:

- Understand the basics of immersive, interactive technology, both software and hardware.
- Use an accessible VR social space to connect with others in virtual environments.
- Develop a personal showcase using 3D objects, photography, video, and sound.
- Create and modify their own individual walk-through space using a mixture of drag-and-drop resources and their own free creations.
- Learn to create simple objects from freely available software such as TinkerCAD, Blender and Meshroom.
- Create their own animated 3D objects and 360 videos.
- Import and modify their own creations within their VR projects.
- use the photographic process of photogrammetry for creating 3D representations of actual, real-world objects.
- Engage in interactive activities on a networked VR platform and create interactivity within their project.

Additionally, students are assessed on the following:

- Ability to work autonomously and responsibly.
- Ambition showcased in their projects.
- Understanding the requirements of the assessment.
- Capacity to allocate time effectively for class requirements.
- The timely presentation of assignments and projects.
- Attendance and Participation.
- Ability to communicate with teaching staff and peers.
- Respecting the space, the technology and its users.

Assignment # 1: due Monday, April 7th

Assignment # 2: due Tuesday, May 9th

Policy on Late Submission of Artworks / Presentations

Assignments (artworks, essays, performances, oral presentations) that are up to 24 hours late will be downgraded one full grade (Example: B+ becomes C+). The Professor is not obliged to accept assignments that are more than 24 hours late. Where a professor agrees to accept a late assignment, it should be submitted by the new deadline agreed upon by both parties. Thereafter, the student will receive a failing grade for the assignment. Grades and comments will be returned to students in a timely fashion. Students are also entitled to make an appointment to discuss assignments and feedback during instructors' office hours.

Students receive mid- and end-of-semester grades for their seminar work. Students are entitled to make an appointment with an instructor to discuss seminar participation, or may be asked to meet with the instructor at any stage in the semester regarding class progress.

Grade Breakdown

Class participation (includes attendance, maintenance of all common and private spaces used for production / rehearsal, communication with Professor and other students): 30%

Homework and in-class work: 30%

Project presentations for critiques (includes end of semester presentations / performances): 40 %

Schedule

Scheduled class times: Friday 2 pm - 5.15 pm.

Classes missed due to prior commitments or illness of the lecturer will be rescheduled.

Week 1, January 31

Introduction to Virtual Reality: The hardware, the software and our virtual environment.

Week 2, February 7

Introduction to Resonite VR:

- The basics – controls, user interface, configuring the Oculus, basic Neos tools
- Inbuilt resources for the user – avatars and objects

Week 3, February 14

Creating 3D Objects with TinkerCAD:

- Introduction to TinkerCAD and its tools

Week 4, February 21

Introduction to Blender - creating basic 3D Objects with Blender from primitives.

Week 5, February 28

Animating with Blender – creating movement in our assignment project.

Week 6, March 7

Introduction to 360 Video

- Cameras and shooting

Week 7, March 14

Introduction to 360 Video

- Editing, conversion and upload to glasses

Week 8, March 21

Resonite VR: Importing and Modifying Objects – 3D models, photos, videos, sounds.

Week 9, March 28

Introduction to Photogrammetry - creating 3D models from real objects.
Setting of assignment 2 – create a 3D object through photogrammetry.

Week 10, April 4

Further Photogrammetry

Introducing final assignment project - creating Personal Showcase in VR.

Assignment # 1: due Monday, April 7^h, 10:00am

Week 11, April 11

Interactive Activities on NeosVR Platform - colliders

April 14 - 22, SPRING BREAK

Week 12, April 25

Interactive Activities on Resonite VR Platform – teleporters

Week 13, May 2

Walk-through Space Creation continued

Week 14, May 9 – Final Presentations

Assignment # 2: due Friday, May 9th, 5.15 pm

Week 15, May 16 – Completion Week

Facility Guidelines:

“The Factory” – Eichenstrasse 43

The Factory Policy Agreement

- 1) “The Factory” at BCB (Eichenstrasse 43) has space and facilities available to BCB students with an academic purpose for using the building. Mandatory in-class orientations are required to retain chip access to the Factory. Chip access to The Factory is from 7am to 10pm everyday during the semester. At 10pm students will be asked to leave the building by BCB security personnel.
- 2) Students agree to only use the common spaces that are available for their needs, and must respect private spaces that are off-limits. For requesting to reserve the dance / theater space and / or Seminar Room 6, please fill out the online [Factory Reservation Form](#). The Factory Staff will get back to you within two weekdays. (Monday - Friday).
- 3) No smoking is allowed anywhere inside the building. There are to be no projects using open flames (such as candles, torches, lanterns, fireworks, etc.) inside any part of the building.
- 4) Fire exits and lanes must be kept clear of any obstructions.
- 5) Spray painting and handling of any hazardous (chemical or combustible) material is not allowed inside the building. Contact the Studio Arts Manager concerning working with these materials. All work surfaces (indoor and outdoor) must be properly protected with a drop cloth or a packing paper provided by the workshop.
- 6) No sandals, flip-flops, or bare feet will be allowed inside the workshop and studio 6.
- 7) Students must make sure all lights are turned off and doors are closed when leaving the building. No windows or doors are to be left opened or cracked. All electrical items must be unplugged when not in use.
- 8) If BCB workshop tools must be borrowed for a purpose outside of the building, please contact The Studio Arts Manager (by appointment).
- 9) There are to be no architectural changes to studios or any areas inside or outside of the building without first speaking with the Studio Arts Manager.
- 10) During completion week, any space used by a student must be returned empty with clean walls and floors. All garbage must be bagged (or boxed) and properly disposed of. Final grades may be penalized and / or fines imposed if items are left (or renovations unfinished) by the inspection deadline.
- 11) Contact Studio Arts Manager directly with any questions: j.park@berlin.bard.edu

AV Facilities – Platanenstrasse 98 (downstairs)

- 1) BCB's AV (Audio / Visual) facilities provide a limited quantity of AV equipment to support those students enrolled in arts classes that require specific items. AV facilities do not include any black and white or color printing services for students.
- 2) The opening times may change every semester to adapt to specific course times. Borrowing equipment is currently implemented by scheduling an advance appointment through this link: <https://avroom.youcanbook.me/> AV facilities are ONLY available during days when classes are held (closed during official BCB holidays).
- 3) All items checked out are due back during AV hours the following day, unless other arrangements have been made in advance directly with AV Staff.

- 4) Items to be reserved on a specific date should be requested at least one week in advance. Without reservation, availability is limited to a first-come, first-serve basis.
- 5) The AV Staff may exclude students from borrowing items at any time, if the student:
 - failed to return items in time
 - failed to return items in person (pick up and/ or return by friends is not allowed)
 - returned items with missing pieces
 - returned items damaged or in poor shape
- 6) AV equipment will be given out only to those students responsible in organizing, picking up as well as returning their items IN PERSON. No exceptions.
- 7) All items returned late, regardless of patron's position at BCB, will be subject to a 1 Euro fine, per day.
- 8) Any item returned without accessories (such as cables, SD card, batteries, tripod head, lens cap, etc) will be subject to a 1 Euro fine, per day (the same as late returns).
- 9) Any items missing will be subject to patron reimbursement for its value (or under special circumstances, replacement, at the discretion of AV Staff). Any items damaged or malfunctioning are expected to be reported to Staff upon check-in.
 - 10) Please use the AV email to inquire about equipment or policy, as well as to reserve (av@berlin.bard.edu). Do not contact AV Staff through their personal emails.
 - 11) We strongly suggest personally visiting the facilities to inquire and reserve before borrowing equipment!
 - 12) AV equipment is limited at BCB. Whenever possible students are encouraged to use their own devices (computers, cameras) for production purposes.
 - 13) Contact AV Staff directly with any questions: av@berlin.bard.edu

Photo Darkroom Facilities – Platanenstrasse 98 (downstairs)
Computer Pool and Media Lab – Kuckhoffstrasse 24 (upstairs)

** Guidelines to be offered during orientations.