internationale filmschule köln

cgl
Cologne Game Lab

Fakultät für Kulturwissenschaften

Technology Arts Sciences
TH Köln

Module Handbook

MA 3D Animation for Film & Games

Table of Contents

Experience Assessment

ID MA.3D.000	Workload 900 h	Credits 30 ECTS	Semester prior to studies	Frequency annual	Duration 6 months

Learning Outcomes / Competencies

The “Experience Assessment” module enables students to:

- provide the admission committee with official documentation of their highest academic certificate/degree
- demonstrate their professional-practical experience (equivalent to at least one year in total) that is relevant to the production of animation – this experience must be completed before students enroll and it may be the cumulative total of various positions/projects
- demonstrate their skills and experience in, as well as their knowledge of, animation production
- prove their sincere interest in, and professional ambition toward, the exploratory production of animated audio visions (linear and nonlinear), as well as the theoretical interrogation of, and reflection upon, audiovisual media in general and their own creations specifically
- demonstrate their ability to actively participate in academic discourse concerning media theoretical concepts, methodologies and inquiries

Module Content

1) Online Application

Applicants provide the necessary personal, professional (1 year of work experience relevant to the production of linear and / or nonlinear audio visions) and academic documentation for the successful completion of the application. They hand in a portfolio of their pieces of work as well as a project description relevant for the Masters’ program.

2) Interview

Suitable applicants are invited for an interview with the program’s faculty.

Evaluation Methods

Discussion, evaluation of application materials (formal and artistic)

Prerequisite Subjects

The necessary academic qualification/degree, 1 year of professional experience in a field applicable to the creation of 3D animation

Assessment Methods

Online application (portfolio of at least 10 artistic pieces, project idea (one pager plus illustrations), paper, formal documents, interview (15 minutes)

Prerequisites for CP

Successful completion of all aspects of the application process

Used in Other Courses

Significance of Module Grade for Final Grade 0%
Module Director(s) and Evaluation Committee Module Directors: Prof. Björn Bartholdy and Prof. Rolf Mütze Evaluation Committee: Prof. Björn Bartholdy, Prof. Rolf Mütze and various CGL / ifs faculty and staff
Other Information ---

Project I: Virtual Character Creation

ID	Workload	Credits	Semester	Frequency	Duration
MA.3D.001	420 h	14 ECTS	1	Annual	16 Weeks

Courses	Contact Hours	Self-Study	Size of Groups
1) Project Development & Realization I	90 h	330 h	6-24

Learning Outcomes / Competencies

1) Project I: Virtual Character Creation:
Students are enabled to...

- orient themselves to organizational, technological and social structures of the Cologne Game Lab and the ifs, allowing them to learn and work effectively on artistic projects and assignments throughout the remainder of their studies
- conceptualize, visualize and execute a 3D animation character for film and games
- combine their creative and technical skill sets to develop and further an understanding of their role as a technical artist
- evaluate and falsify their project concept through means of prototyping, consequently developing a proficiency in design methods
- demonstrate extended competencies with animation software
- adequately convey their project concept in public to an expert audience
- demonstrate a high proficiency in multimedia presentation skills
- show expanded project management competencies (e.g. time management, competence to set strategic goals, problem solving strategies)

Module Content

1) Project Development & Realization I
Students realize a 3D character and finalize it for film (looped motion sequence) as well as games (implementation into a game engine). In the process they broaden and deepen their technical knowledge in 3D software as well as their creative skills in such areas as:

- Character concept
- Modelling, sculpting
- Surfaces: shading, texturing
- Character setup
- Key frame animation.

Teaching Methods
Seminar, project work, mentoring

Prerequisite Subjects

Assessment Methods
Work Sample (animated signature pose of character, 5-15 seconds), documentation (at least five illustrations / screenshots of the character throughout the development process), presentation (15 minutes), evaluation and discussion of projects

Prerequisites for CP Completion of homework or course work, completion of projects and project presentations
Used in Other Courses ---
Significance of Module Grade for Final Grade 15,5%
Module Director(s) and Module Instructor(s) Module Directors: Prof. Björn Bartholdy and Prof. Rolf Mütze Module Instructors: Prof. Björn Bartholdy, Prof. Rolf Mütze, Waldemar Fast, Prof. Dr. Joachim Friedmann, Sebastian Luedke, Pascal Floerks guest instructors
Other Information ---

Animation in Film & Games: History & Theory I

ID	Workload	Credits	Semester	Frequency	Duration
MA.3D.002	240 h	8 ECTS	1	Annual	16 Weeks

Courses	Contact Hours	Self-Study	Size of Groups
1) Audiovisual Media in Modern Times	20 h	70 h	6-24
2) Methods and Tools I	15 h	45 h	6-24
3) Animation History I	15 h	45 h	6-24
4) Lecture Series I	10 h	20 h	15-150

Learning Outcomes / Competencies

1) Audiovisual Media in Modern Times

Students will:

- gain basic knowledge of the history and theories of audiovisual media with specific regard to animation and games;
- acquire a basic ability to analyze critically and historically contextualize works of audiovisual art;
- fuse academic and artistic perspectives with the goal of demonstrating how comparative historical knowledge and theoretical concepts can influence and expand the creative practice, especially the development of critical-analytical reflection and the creative utilization of one's own artistic potential;
- strengthen their academic presentation skills.

2) Methods and Tools I

Students are enabled to...

- handle development environments.
- write their own scripts to solve typical problems in animation.
- execute basic object oriented programming.

3) Animation History I

Students are enabled to...

- Students know about the historic development of animation such as the pre-animation times, Disney Studios and North American Animation in general
- Students develop an active vocabulary to describe and discuss the aesthetics, techniques and development of animation

4) Lecture Series I

Students broaden their competencies in terms of theories and methods as well as their industry knowledge in the field of linear and nonlinear audiovisual production.

5) General Learning Outcomes / Soft Skills

Students are enabled to...

- develop the ability to transfer and reappropriate knowledge from theory into practice and vice versa
- establish a basis for (self)reflection on their own artistic output as well as artistic identity in the context of animated audio visions

Module Content

1) Audiovisual Media in Modern Times
The modern development of audiovisual media — from the theater of illusion to live action and animated film to television to digital games to augmented and virtual reality — is characterized by the successive accumulation of skills and technologies to generate and capture images and sound, and thus also by increasing complexity. This seminar will serve as an introduction to the social, cultural, and technological history of modern audiovisuality, from the Renaissance to the present time, and will confront participants with relevant cultural and aesthetic theories concerning audiovisual media.

2) Methods and Tools I
In this submodule students are given an introduction into programming. They are taught the key elements of imperative programming (data type and control structures) as well as the basics of object oriented programming using contemporary programming languages (e.g. Java, Python). They learn to operate modern development environments (e.g. Visual Studio Code) and work with debugging tools.

3) Animation History I
The seminar “Animation History I” will cover the fundamentals of analog animation from a technological and aesthetical perspective and discuss the basic principles of this field. It includes the pre-forms and early days of animation. It will also take a closer look at the work of selected studios such as Disney and illustrate other major developments in the animation industry of North America. To complement the cinematic animations, contemporary arts works from the field of games are also consulted and analyzed in comparison.

4) Lecture Series I
This campus-wide, ongoing event consists of a diverse collection of renowned guest lecturers, including theorists, artists and industry experts, among others. Lecture topics are relevant for student projects and/or the academic, cultural and socio-economic interrogation of linear and nonlinear audio visions.

Teaching Methods
Seminar, lecture, self-study

Prerequisite Subjects

Assessment Methods
Term paper (2500 words) or Presentation (45 minutes),
and documentation (2000 words and visual references)

Prerequisites for CP
Term paper or Presentation, documentation, active participation, completion of homework and course work (both individual and in groups)

Used in Other Courses
“Lecture Series” is open to the entire CGL and ifs student body

Significance of Module Grade for Final Grade
9%

Module Director(s) and Module Instructor(s) Module Directors: Prof. Björn Bartholdy and Prof. Rolf Mütze Module Instructors: Prof. Björn Bartholdy (Animation History I), Prof. Dr. Gundolf S. Freyermuth (Audiovisual Media in Modern Times), Jan-Philipp Koch (Methods and Tools I), various guest lecturers (Lecture Series)
Other Information

Project II: Story & Performance

ID	Workload	Credits	Semester	Frequency	Duration
MA.3D.003	420 h	14 ECTS	2	Annual	16 weeks

Courses	Contact Hours	Self-Study	Size of Groups
Project Development & Realization II	90 h	330 h	6-24

Learning Outcomes / Competencies

1) Project II: Story & Performance

Students are enabled to:

- deepen and professionalize their staging capacities of animated characters for film and games. They are able to...
    - handle the processing of motion sequences on a professional level
    - apply methods of iterative working processes and to develop a routine in project work based on design thinking
    - expand their knowledge of dramaturgy (linear and nonlinear methods of storytelling) for the analysis and creation of animation projects
- develop unique solutions for their animation projects with regard to their aesthetic, technological and ethical elements, thus strengthening the students' analytical and problem-solving competence
- actively participate in discourse on 3D animation, including topics such as cutting-edge technological developments and innovative design strategies
- apply their theoretical knowledge on animation to practice
- develop long-term strategies for work in the field of animation
- reflect on the medial, social and ethical aspects of their own work

Module Content

1) Project Development & Realization II

The project of the second semester consists of the staging of two animated characters. Students finalize their project's for film (motion sequence) and games (implementation into a game engine). To achieve this goal students expand and deepen their knowledge and skills in the following areas:

- linear and nonlinear storytelling (models such as the Hero's Journey, Nine Powers, Creative Matrix, Systemic Dramaturgy)
- writing and acting / directing of animation projects
- animation
- post-production.

Teaching Methods

Seminar, project work, mentoring

Prerequisite Subjects

"Project I: Virtual Character Creation I" module (MA.3D.001)

Assessment Methods

Work Sample (animated sequences, 20 - 30 seconds in total), presentation (10 minutes), evaluation and discussion of projects
Prerequisites for CP Completion of homework or course work, completion of projects and project presentations
Used in Other Courses ---
Significance of Module Grade for Final Grade 15,5%
Module Director(s) and Module Instructor(s) Module Directors: Prof. Björn Bartholdy and Prof. Rolf Mütze Module Instructors: Prof. Björn Bartholdy and Prof. Rolf Mütze, Prof. Nanette Kaulig, Waldemar Fast, Ilja Burzev, Pascal Floerks, guest instructors
Other Information ---

Animation in Film & Games: History & Theory II

ID	Workload	Credits	Semester	Frequency	Duration
MA.3D.004	240 h	8 ECTS	2	Annual	16 Weeks

Courses	Contact Hours	Self-Study	Size of Groups
1) Principles and Procedures of Storytelling in Fiction and Non-Fiction	20 h	70 h	6-24
2) Methods and Tools II	15 h	45 h	6-24
3) Animation History II	15 h	45 h	6-24
4) Lecture Series II	10 h	20 h	15-150

Learning Outcomes / Competencies

1) Principles and Procedures of Storytelling in Fiction and Non-Fiction

Students will:

- fuse academic and artistic perspectives with the goal of demonstrating how comparative historical knowledge and theoretical concepts can influence and expand creative practice, especially the development of critical-analytical reflection and the creative utilization of one's own artistic potential.
- expand orientational knowledge in the fields of contemporary film and game research as well as production especially with regard to media studies, narratology, genre theory, cultural studies and sociology.
- further develop their proficiency in academic work, especially analysis, critique and providing feedback.

2) Methods and Tools II

Students...

- can make use of the functionality and potentials of various game engines.
- are enabled to build interactive content with engines.
- can use basic scripting methods in the context of gaming middleware.
- apply their knowledge in the field of animation systems (blend trees, state machines and runtime rigs).

3) Animation History II:

Students are enabled to...

- Students know about the historic development of animation such as European Animation, Eastern European and Russian Animation, East Asian Animation, Animation for Film, Television and Advertising.
- Students deepen their active vocabulary to describe and discuss the aesthetics, techniques and development of animation.

4) Lecture Series I

Students broaden their competencies in terms of theories and methods as well as their industry knowledge in the field of linear and nonlinear audiovisual production.

5) General Learning Outcomes / Soft Skills

Students are enabled to...

- further apply theoretical fundamentals to their own project work and research

- further develop their proficiency to reflect on their own artistic output as well as artistic identity in the context of animation.

Module Content

1) Principles and Procedures of Storytelling in Fiction and Non-Fiction
Storytelling is a basic form of human communication. Narrative, whether it is nonfictional or fictional, helps us understand the world by endowing it with rational and emotional meaning. The seminar will focus on four topics: 1) principles and procedures of storytelling in general (modes of narration, elements of narration); 2) specifics and procedures of storytelling in different analog audiovisual media (constraints of time and space); 3) specifics and procedures of storytelling in different digital audiovisual media (linear and nonlinear narration, database and environmental orientation); 4) specifics and procedures of fictional and nonfictional storytelling in digital audiovisual media (questions of authenticity and authorship).

2) Methods and Tools II
The focus of the sub-module “Methods and Tools II” is on game engines. The students learn to work with established 3D game engines such as Unity 3D (https://unity3d.com/de), Unreal Engine (https://www.unrealengine.com/). They understand the general functions of these engines (main program, rendering engine, audio engine, physics engine and ai) and learn how to develop interactive content in these integrated development environments. Additionally, they will be introduced to the role of scripting languages relevant for the development process (e.g. Java, C#, or Lua Script).

3) Animation History II
The second part of this seminar series expands the students’ animation literacy by presenting and analyzing exemplary regional phenomena in Europe, Eastern Europe or East Asia. Additionally, aspects of the application of animation in fields such as visual effects, advertising, and television design will be featured and discussed.

4) Lecture Series
This campus-wide, ongoing event consists of a diverse collection of renowned guest lecturers, including theorists, artists and industry experts, among others. Lecture topics are relevant for student projects and/or the academic, cultural and socio-economic interrogation of linear and nonlinear audiovisions.

Teaching Methods
Seminars, lectures, self-study

Prerequisite Subjects
“Animation in Film & Games: History & Theory I” module (MA.3D.002)

Assessment Methods
Term paper (2500 words) or Presentation (45 minutes),
and documentation (2000 words and visual references)

Prerequisites for CP
Term paper or presentation, documentation, active participation (Media Studies), completion of homework or course work (both individual and in groups)

Used in Other Courses
“Lecture Series” is open to the entire CGL and ifs student body

Significance of Module Grade for Final Grade 9%
Module Director(s) and Module Instructor(s) Module Directors: Prof. Björn Bartholdy Module Instructors: Prof. Björn Bartholdy (Animation History II), Prof. Dr. Gundolf S. Freyermuth (Principles and Procedures of Storytelling in Fiction and Non-Fiction), Onat Hekimoglu (Methods and Tools II), various guest lecturers (Lecture Series)
Other Information ---

Project III: Immersive Animation

ID	Workload	Credits	Semester	Frequency	Duration
MA.3D.005	420 h	14 ECTS	3	Annual	16 Weeks

Courses	Contact Hours	Self-Study	Size of Groups
Project Development & Realization III	90 h	330 h	6-24

Learning Outcomes / Competencies

1) Project III: Immersive Animation
Students are enabled to:

- extend and transfer their knowledge and skills of 3D animation to other forms of art such as Virtual Reality, Augmented Reality, performances or installations through means of experiment and artistic research
- refine their artistic practice and consequently their self image as a technical artist through the incorporation of one's understanding of the synergies and differences of various art forms into their own work
- strengthen and professionalize their technical and aesthetic capacities of 3D animation in the areas of:
    - preproduction (high concept, pitching, concept, concept art, prototyping, testing)
    - production (project execution, character and world design, animation, programming)
    - postproduction (documentation, post-mortem, publication, external pitching/communication)
- develop projects that are both culturally reflective and relevant by market standards
- strengthen effective problem solving strategies in a fast-paced environment
- professionally apply prototype-oriented production strategies
- further develop their experience in the prototyping of 3D animation projects
- model workflow processes in production scenarios
- augment their ability to manage their time and resources

Module Content

1) Project III: Immersive Animation
Students design and execute an experimental animation project for e.g. Virtual Reality, Augmented Reality, performance capture, installations, film or games. To achieve this goal students expand and deepen their knowledge and skills in the following areas:

- immersive technologies
- spatial design concepts and spatial storytelling
- physical computing

Teaching Methods
Seminar, project work, mentoring

Prerequisite Subjects
"Project II: Story & Performance" module (MA.3D.003)

Assessment Methods Work Sample (animated sequences, 60 - 90 seconds at most per student), documentation (at least five illustrations / screenshots of the development process), presentation (20 minutes), evaluation and discussion of projects
Prerequisites for CP Completion of homework or course work, completion of projects and project presentations
Used in Other Courses ---
Significance of Module Grade for Final Grade 15,5%
Module Director(s) and Module Instructor(s) Module Directors: Prof. Björn Bartholdy and Prof. Rolf Mütze Module Instructors: Prof. Björn Bartholdy, Prof. Rolf Mütze, Prof. Nanette Kaulig, Jan-Philipp Koch, Sebastian Lüdke, guest instructors
Other Information ---

Animation in Film & Games: History & Theory III

ID MA.3D.006	Workload 240 h	Credits 8 ECTS	Semester 3	Frequency Annually	Duration 16 Weeks
Courses 1) Academic and Artistic Research: History, Theory, and Practice 2) Animation History III 3) Professionalization 4) Lecture Series			Contact Hours 20 h 15 h 15 h 10 h	Self-Study 70h 45 h 45 h 20 h	Size of Groups 6-24 6-24 6-24 15-150

Learning Outcomes / Competencies

1) Academic and Artistic Research: History, Theory, and Practice

Students will:

- gain knowledge of the history and theories of academic and artistic research with specific regard to their Master's thesis projects;
- further develop their proficiency in academic work, especially analyzing, critiquing, and providing feedback;
- further improve their ability to engage in academic discourse as well as apply theoretical fundamentals to their own academic and artistic research.

2) Animation History III

Students...

- know about the historic development of computer animation, new fields of animation, the animation economy and current tendencies in animation
- hone their active vocabulary to describe and discuss the aesthetics, techniques and development of animation

3) Professionalization

Students are enabled to...

- use marketing tools based on market-relevant analysis
- advance their presentation skills to meet industry standards

4) Lecture Series I

Students broaden their competencies in terms of theories and methods as well as their industry knowledge in the field of linear and nonlinear audiovisual production.

5) General Learning Outcomes / Soft Skills

Students are enabled to…

- further apply theoretical fundamentals to their own project work and research
- further develop their proficiency to reflect on their own artistic output as well as artistic identity in the context of animated audio visions

Module Content

1) Academic and Artistic Research: History, Theory, and Practice
In early modernity, artistic and academic research flourished side by side. The process of industrialization, however, marginalized artistic research whose raison d'être was not the research itself, but rather the artistic production based on it. While reliable academic procedures and practices of research were established in the natural sciences, social sciences, and humanities during the 19th and 20th century, artistic study and experimentation, by its very nature, could not follow the standards of industrialized research: detailed planning, Taylorization in execution, and reliable standardization in its presentation. Currently, with the transition from industrial to digital culture, artistic research gains new significance. In this seminar, participants will learn about the history and theories of research and be encouraged to reflect on related problems and questions of academic as well as artistic research arising in the context of the Master's thesis projects.

2) Animation History III
In the third semester the seminars on Animation History will concentrate on the history of computer based animation in general and specifically review the development of 3D Animation. The students concern themselves with the current state of the art of 3D Animation in film, games and expanded animation. Furthermore, they will engage with the animation industry and its contemporary trends.

3) Professionalization
Students learn to establish a business plan for their project and further their professional competencies such as pitching, self-marketing and legal affairs.

4) Lecture Series
This campus-wide, ongoing event consists of a diverse collection of renowned guest lecturers, including theorists, artists and industry experts, among others. Lecture topics are relevant for student projects and/or the academic, cultural and socio-economic interrogation of linear and nonlinear audiovisions.

Teaching Methods

Seminar, lecture, self-study

Prerequisite Subjects

"Animation in Film & Games: History & Theory II" module (MA.3D.004)

Assessment Methods

Term paper (2500 words) or Presentation (45 minutes),
and documentation (2000 words and visual references)

Prerequisites for CP

Term paper or presentation, documentation, active participation (Media Studies), completion of homework or course work (both individual and in groups)

Used in Other Courses

Significance of Module Grade for Final Grade

9%

Module Director(s) and Module Instructor(s)

Module Directors: Prof. Björn Bartholdy, Prof. Rolf Mütze
Module Instructors: Prof. Dr. Gundolf S. Freyermuth (Academic and Artistic Research: History, Theory, and Practice), Prof. Odile Limpach (Professionalization), Prof. Rolf Mütze

(Professionalization), Charles Harris (Professionalization), various guest lecturers (Lecture Series)
Other Information ---

Master's Project

ID	Workload	Credits	Semester	Frequency	Duration
MA.3D.007	720 h	24 ECTS	4	Once	16 Weeks

Courses	Contact Hours	Self-Study	Size of Groups
1) Master's Project	20 h	580 h	1-5
2) Project Presentation and Defense	10 h	110 h	1-5

Learning Outcomes / Competencies

The "Master Thesis" module enables students to:

- develop unique problem-solving strategies through the development of a 3D animation project or an academic thesis concerning the same field of expertise
- apply meta-concepts and meta-strategies to their own development and research process
- accumulate differentiated experience in generating, developing, refining and evaluating innovative ideas and concepts in the applied as well as academic field of 3D animation
- expand and strengthen their proficiency in technological conceptualization and development of 3D animation projects
- professionally engage in academic discourse as well as apply theoretical fundamentals to their own academic and artistic research
- strengthen their multimedia-professional skills, including public speaking, pitching, moderating, networking and management, among others

Module Content

1) Master's Project

Students produce an artistic-academic media project for either film, game or other related areas including a media theoretical thesis. The project demonstrates their ability to conceptualize and realize a worthwhile, marketable product with due regard to technological and economic standards, as well as aesthetic, cultural and social considerations. Alternatively, students may choose to pursue an academic research project including media application. Students receive consultation throughout the Master's project from the professors.

2) Project Presentation and Defense

Students present their projects to the module directors as well as faculty and staff.

Teaching Methods

Thesis project work, mentoring, feedback via Thesis Defense

Prerequisite Subjects

90 ECTS (Successful completion of the first three semesters of instruction)

Assessment Methods

Work Sample (individual or group animation project, processing time 4 months), Thesis (depending on a theoretical or practical focus of the project 40 - 70 pages), Thesis Presentation (15 - 30 minutes) and Defense (30 minutes)

Prerequisites for CP

Completion of Master Thesis and successful defense thereof

Used in Other Courses ---
Significance of Module Grade for Final Grade 26,5%
Module Director(s) and Evaluation Committee Module Directors: Prof. Björn Bartholdy and Prof. Rolf Mütze Evaluation Committee: Prof. Björn Bartholdy, Prof. Rolf Mütze and various faculty and staff
Other Information ---