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Faculty of Cultural Sciences

# **Module Catalog**

## **Digital Games (B.A.)**

[Bachelor of Arts]

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# Module Catalog | Digital Games, Bachelor of Arts

## 1 Program Description

The Bachelor of Arts in Digital Games is a full-time program that lasts seven semesters and is divided into three specialization tracks: Game Arts, Game Design, and Game Programming. During the first two semesters, students receive general training in all three areas. From the third semester onwards, each student focuses on the specialization of their choice. Alongside practical training and project-based modules, students acquire the theoretical foundation necessary for the critical examination of video games.

## 2 Graduate Profile

Graduates of the BA Digital Games should have acquired artistic and academic, methodological, historical, and technical knowledge and skills for the conception and planning, development and production of digital games and other non-linear interactive audiovisual media. This involves both the acquisition of general "game literacy" – which is indispensable for interdisciplinary collaboration in the games industry – and specialization in one of the practice fields: "Game Arts," "Game Design" or "Game Programming." The above-mentioned general game literacy includes: knowledge and skills in game arts, game design, game programming, sound design, project management, economics and entrepreneurship, game studies, player research, game analysis.

At the end of their studies, graduates are specialists in either Game Arts, Game Design, or Game Programming with a solid understanding of the other departments. They are furthermore capable of interdisciplinary collaboration and have acquired a range of necessary soft skills in areas such as communication, presentation, and time management. An individual student's specialization might include a further, more in-depth specialization in a certain sub-field, which can be attained through the takeover of specialized tasks in collaborative projects (e.g. as a 3D animator in Game Arts, a narrative designer in Game Design, or a gameplay programmer in Game Programming).

In addition, graduates should have gained theoretical and historical perspectives as well as artistic and ethical orientations. They are familiarized with current academic questions on the production, use, and impact of non-linear audio visions, and are able to analyze games as a form of culture in their historical, cultural, societal, and economic contexts. All in all, they are able to participate in the interdisciplinary discourse on games, their players, and the surrounding cultures. Thus, graduates should have gained a broad store of reference knowledge as well as analytical and critical thinking skills useful for game development. Graduates are also able to critically judge the cultural and social effects emanating from their own work. Their ethical competencies encompass an engaged attitude towards one's own artistic-academic actions. Last but not least, graduates are prepared for work in international contexts and intercultural teams.

Graduates should be employable within the traditional global games industry, including studios of various sizes and focuses (AAA, Indie, Serious Games), and in different roles according to their specialization. Those roles include (but are not limited to): game designer, narrative designer, level designer, project manager, character designer, 2D artist, 3D artist, animator, gameplay programmer. Furthermore, they should be employable in other sectors that develop or use digital games or elements of digital games – e.g. in the form of "serious games" or as part of "gamification." These sectors include, among others, education and training, teaching, material design, advertising and marketing, film and television production, press, visual arts and

museums, automotive, telecommunications, aviation, and aerospace. Furthermore, students should be prepared for self-employment and creating their own business start-ups. Finally, graduates should not only be qualified to work in the current games industry, but should be also able to carry out academic and artistic experiments, come up with innovative approaches to problem solving, take aesthetic risks and respond independently to future technical and aesthetic changes in other industries as well.

### 3 Fields of Activity

Graduates apply their knowledge and skills in the following fields of activity:

**Developing Games:** Graduates shape the defining medium of the 21st century. They create digital games, in different roles according to their specialization: in Game Arts, Game Design, and Game Programming. They work in interdisciplinary and international teams, as employees in development studios of different sizes and foci, as freelancers and entrepreneurs. They work on AAA games, indie games, art games, and educational games. Thereby, our graduates make significant contributions to artistic expression, popular entertainment, knowledge transfer, and opinion-making in digital culture.

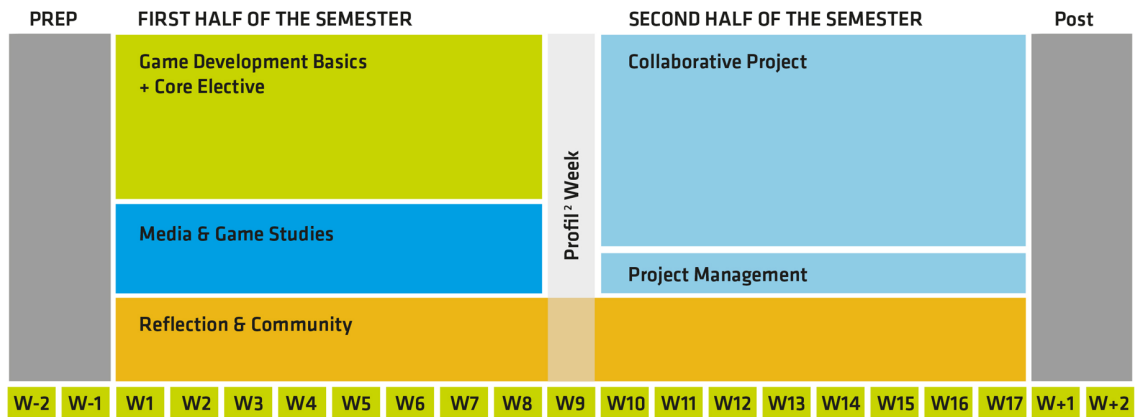
**Communicating Games:** Graduates are producers and mediators of knowledge about the artistic and technical development as well as societal and cultural functions of games. They research and teach in the fields of Game Arts, Game Design, Game Programming, Sound Design for Games, Game Economics and Entrepreneurship, and Game Studies. This includes various forms of research and its communication and transfer: industry research in development studios, basic and applied research at universities, journalistic communication, consulting, multiplier activities in state and private institutions such as museums, galleries, libraries, and cultural offices. Teaching takes place at different levels: from industry-internal further education to vocational schools, to higher education. Thereby, our graduates contribute significantly to the social dissemination of literacy in media and games.

**Gamifying Experiences:** Graduates help to adapt the methods, services, and products of older established areas of administration and production to the requirements of digital technology and digital culture. By applying their state-of-the-art game development knowledge and skills, particularly in the areas of motivation and feedback, to other fields, they participate in the ongoing effort to streamline and gamify procedures in public institutions and a variety of trades and industries as diverse as telecommunications and automotive, management and software development. Thereby, our graduates contribute significantly to making the advantages of digital work and workplace culture more accessible to a wider range of economic and social sectors.

## 4 Curriculum

SEMESTER 1	SEMESTER 2	SEMESTER 3	SEMESTER 4	SEMESTER 5	SEMESTER 6	SEMESTER 7
Game Development Basics 1 (10 ECTS)	Game Development Basics 2 (10 ECTS)	Core Elective 1: Game Arts (10 ECTS)	Core Elective 2: Game Arts (10 ECTS)	Internship (25 ECTS)	Core Elective 3: Game Arts (10 ECTS)	Core Elective 4: Game Arts (6 ECTS)
Game Arts Game Design Game Programming	Game Arts Game Design Game Programming	Core Elective 1: Game Design (10 ECTS)	Core Elective 2: Game Design (10 ECTS)		or	Core Elective 3: Game Design (10 ECTS)
		Core Elective 1: Game Programming (10 ECTS)	Core Elective 2: Game Programming (10 ECTS)	Exchange Semester (25 ECTS)	Core Elective 3: Game Programming (10 ECTS)	Core Elective 4: Game Programming (6 ECTS)
Basic Media & Game Studies 1 (5 ECTS)	Basic Media & Game Studies 2 (5 ECTS)	Basic Media & Game Studies 3 (5 ECTS)	Intermediate Media & Game Studies 1 (5 ECTS)	or	Intermediate Media & Game Studies 2 (7 ECTS)	
Collaborative Project 1 (10 ECTS)	Collaborative Project 2 (10 ECTS)	Collaborative Project 3 (10 ECTS)	Collaborative Project 4 (10 ECTS)	Self-Initiated Project (25 ECTS)	Collaborative Project 5 (10 ECTS)	Bachelor Project (12 ECTS)
						Colloquium / Presentation (5 ECTS)
Reflection & Community 1 (5 ECTS)	Reflection & Community 2 (5 ECTS)	Reflection & Community 3 (5 ECTS)	Reflection & Community 4 (5 ECTS)	Reflection & Community 5 (5 ECTS)	Reflection & Community 6 (5 ECTS)	Reflection & Community 7 (5 ECTS)
<b>30 ECTS</b>	<b>30 ECTS</b>	<b>30 ECTS</b>	<b>30 ECTS</b>	<b>30 ECTS</b>	<b>30 ECTS</b>	<b>30 ECTS</b>

## 5 Semester Structure



## 6 Alternative Curriculum

[to be discussed on a single case basis]

## 7 Modules

### 7.1 Game Development Basics 1

Module Code:	BA.001
Module Title:	Game Development Basics 1
Type of Module:	Mandatory Module
ECTS Credits:	10 ECTS
Language:	English
Duration of Module:	8 weeks
Recommended for Semester:	1
Frequency:	Annual
Person Responsible for this Module:	Prof. Björn Bartholdy
Lecturers:	Prof. Björn Bartholdy (Media Design), Prof. Bernd Diemer (Game Design), Prof. Dr. Emanuel Guardiola (Game Design), Prof. Markus Hettlich (Game Informatics), Prof. Nanette Kaulig (3D Animation & CG Art for Games), Prof. Dr. Roland Klemke (Game Informatics), Prof. Dr. Cécile Le Prado (Sound Design for Games), Markus Wiemker (Game Design), Jonas Zimmer (Game Informatics)
Learning Outcome:	Students are able to create all elements of a game (Art, Code, Design, Sound) by applying basics of visual design, classical as well as digital 2D Art and Animation, sound design and sonic perception, fundamental principles and elements of game design (specifically gameplay, prototyping, iteration), core elements of programming (including data types, control flow, loops, and functions) in order to have the artistic and technical abilities to later collaborate with students/professionals of other specializations in game development projects (e.g. in "Collaborative Project 1").
Module Content:	<p>1) Game Arts: Visual Design Basics I – for Example: Typography, Format, Color, GUI, UI/UX; Art and Animation Basics I – 2D Classical and Digital.</p> <p>2) Game Design: Introduction to Gameplay (making choices, challenges, uncertainty, etc.); Introduction to Methods of Analog and Digital Prototyping and Practical Exercises (for example, through board game prototyping); Introduction to game mechanics; Classics of Game Design Theory</p> <p>3) Game Programming: Programming Basics I – fundamentals, programming technologies, programming languages, data types, control flow, loops, and functions applied to game engines and simple game mechanics</p> <p>4) Sound Design: Sound Design Basics I – perception, acoustic, linear editing, audiovisual relations</p>
Teaching and Learning Methods:	Lectures, seminars, tutorials
Assessment Method:	Practical exercise, presentation, paper, written exam and/or oral exam in all courses of the module (weighted proportionally)
Workload (30 h $\hat{=}$ 1 ECTS credit):	300 hours
Contact hours:	115 hours
Self-study:	185 hours
Recommended Prerequisites:	none
Recommended Reading:	...

Use of the Module in Other Degree Programs:	...
Particularities:	...
Last update:	September 2020

## 7.2 Basic Media and Game Studies 1

Module Code:	BA.002
Module Title:	Basic Media and Game Studies 1
Type of Module:	Mandatory Module
ECTS Credits:	5 ECTS
Language:	English
Duration of Module:	8 weeks
Recommended for Semester:	1
Frequency:	Annual
Person Responsible for this Module:	Prof. Gundolf S. Freyermuth
Lecturers:	Prof. Dr. Gundolf S. Freyermuth (Media & Game Studies), Prof. Dr. Sonia Fizek (Player Research), Prof. Odile Limpach (Economics & Entrepreneurship for Games)
Learning Outcome:	<p><i>Media &amp; Game Studies</i></p> <p>The students are enabled to analyze academic writing in its diversity of approaches, specifically in the interdisciplinary field of game studies, and can historically contextualize digital games, by:</p> <ul style="list-style-type: none"> <li>• learning the basic techniques of academic work,</li> <li>• engaging with academic texts essential to the formation of the field of game studies,</li> <li>• studying theories of play,</li> <li>• following the historical evolution of early analog video games to the digital games of the present,</li> <li>• studying different approaches to player research to creatively and intellectually enrich the development of the student's digital game projects.</li> </ul> <p>As a result, the students are provided with essential theoretical and historical perspectives and can inform the creative work using theories of play and approaches to player research.</p> <p><i>Economics &amp; Entrepreneurship</i></p> <p>The students can analyze the video game market and its recent evolution from an economic viewpoint by studying the recent history of the games market, applying basic marketing concepts like the SWOT and market segmentation analysis to recognize market developments and risks, and to form own sensibilities for economic opportunities regarding their future game project or company.</p>
Module Content:	<ol style="list-style-type: none"> <li>1) Approaches to Game Studies from the humanities and social sciences; history of games: preindustrial games, industrial games; digital games: beginnings, narrative turn, audiovisual turn, etc.</li> <li>2) History and theories of analog and digital games</li> <li>3) Introduction to key concepts of Play and Player</li> </ol>

	4) Introduction to Player Research
	5) Historical and economic development of the American, European and German games industries; the globalization of the games industry, structures and structural changes of the games industry; definition of strategic marketing
Teaching and Learning Methods:	Lectures, seminars, presentations
Assessment Method:	Written homework or course work (blog, wiki, paper) or presentation; written test or oral exam in all courses of the module (weighted proportionally)
Workload (30 h $\hat{=}$ 1 ECTS credit):	150 hours
Contact hours:	41 hours
Self-study:	109 hours
Recommended Prerequisites:	none
Recommended Reading:	...
Use of the Module in Other Degree Programs:	...
Particularities:	...
Last update:	September 2020

### 7.3 Collaborative Project 1 (Ludic Games)

Module Code:	BA.003
Module Title:	Collaborative Project 1 (Ludic Games)
Type of Module:	Mandatory Module
ECTS Credits:	10 ECTS
Language:	English
Duration of Module:	8 Weeks
Recommended for Semester:	1
Frequency:	Annual
Person Responsible for this Module:	Prof. Nanette Kaulig, Prof. Dr. Gundolf S. Freyermuth
Lecturers:	Prof. Björn Bartholdy (Media Design), Prof. Bernd Diemer (Game Design), Prof. Dr. Sonia Fizek (Player Research), Prof. Dr. Gundolf S. Freyermuth (Media and Game Studies), Prof. Dr. Emmanuel Guardiola (Game Design), Prof. Markus Hettlich (Game Informatics), Prof. Nanette Kaulig (3D Animation & CG Art for Games), Prof. Dr. Roland Klemke (Game Informatics), Prof. Dr. Cécile Le Prado (Sound Design for Games), Prof. Odile Limpach (Economics & Entrepreneurship for Games)
Learning Outcome:	<p>Students are able to create a simple ludic game together with team members of other specializations</p> <p>by recalling knowledge on the game development process – from conception (pitching) and design to production, post-production and presentation; developing and applying ludic patterns, generating artwork and establishing fundamental programming schemas; applying all</p>



	elements of project management (initiation, planning, design, execution, monitoring, controlling, presenting); sharing complementary tasks in interdisciplinary teams
	in order to be prepared for future collaborations in interdisciplinary teams developing games of this genre.
Module Content:	<ul style="list-style-type: none"> <li>• Pre-production: high concept, pitching, concept, concept art, game design documentation, prototyping, testing;</li> <li>• Production: game design, game arts (character &amp; environment art, animation, interface, audio design), programming/game informatics, level design;</li> <li>• Post-production: documentation, post-mortem, publication, external pitching/communication;</li> <li>• Project Management (initiation, planning and design; execution and construction; monitoring and controlling methods; completion).</li> </ul>
Teaching and Learning Methods:	Project work, seminar, individual and group mentoring
Assessment Method:	Prototype, documentation, presentation
Workload (30 h $\hat{=}$ 1 ECTS credit):	300 hours
Contact hours:	40 hours
Self-study:	260 hours
Recommended Prerequisites:	none
Recommended Reading:	...
Use of the Module in Other Degree Programs:	...
Particularities:	...
Last update:	September 2020

## 7.4 Reflection and Community 1

Module Code:	BA.004
Module Title:	Reflection and Community 1
Type of Module:	Mandatory Module
ECTS Credits:	5 ECTS
Language:	English
Duration of Module:	16 weeks
Recommended for Semester:	1
Frequency:	Annual
Person Responsible for this Module:	Prof. Björn Bartholdy
Lecturers:	Prof. Björn Bartholdy (Media Design), Prof. Bernd Diemer (Game Design), Prof. Dr. Sonia

	Fizek (Player Research), Prof. Dr. Gundolf S. Freyermuth (Media and Game Studies), Prof. Dr. Emmanuel Guardiola (Game Design), Prof. Markus Hettlich (Game Informatics), Prof. Nanette Kaulig (3D Animation & CG Art for Games), Prof. Dr. Roland Klemke (Game Informatics), Prof. Dr. Cécile Le Prado (Sound Design for Games), Prof. Odile Limpach (Economics & Entrepreneurship for Games), Dr. Anne Laaredj-Campbell (English)
Learning Outcome:	<p>Students are able to analyze their own professional practice, synthesize a variety of perspectives from fields inside and outside of game development, and apply different key skills in areas such as self-reliance, organization, teamwork, and communication</p> <p>by reflecting on their own artistic and professional development, evaluation a variety of professional and academic perspectives, applying the English language in a game development context, and contributing to interdisciplinary and inter-semester projects in and beyond game development,</p> <p>in order to be prepared – intellectually, psychologically, and socially – for interdisciplinary and intercultural team work in the ever-changing labor market of the 21<sup>st</sup> century in and beyond the game industry.</p>
Module Content:	<ol style="list-style-type: none"> <li>1) Individual and Group Mentoring: with a main focus on student artistic and professional development in their respective area of specialization (Game Arts, Game Design, or Game Programming).</li> <li>2) Game Lab Lectures: 10 to 12 guest lectures offering a variety of perspectives from both game development and game studies.</li> <li>3) English for Game Developers: Study and work abroad within an International Context (English as a global language, using the right register/tone within university context, email/written correspondence, basic essay writing skills, dealing with culture shock and reverse culture shock)</li> <li>4) Work Groups: In these self-organized groups, students contribute to CGL's unique culture and community. Among others responsibilities, these groups support CGL's endeavors in the areas of conferences, exhibitions, publishing, research, public relations, collecting and archiving of games and media, and more.</li> <li>5) Profil<sup>2</sup> Week: Within the university-wide Profil<sup>2</sup> Week students can choose an interdisciplinary and/or project-oriented course within or outside CGL.</li> </ol>
Teaching and Learning Methods:	Lectures, seminars, group work, individual and group mentoring
Assessment Method:	...
Workload (30 h $\hat{=}$ 1 ECTS credit):	150 hours
Contact hours:	75 hours
Self-study:	75 hours
Recommended Prerequisites:	none
Recommended Reading:	...
Use of the Module in Other Degree Programs:	Parts of the module, i.e., the Game Lab Lectures, Work Groups and Profil <sup>2</sup> Courses are open to all CGL students. Mentoring and English are exclusively offered to BA Digital Games students.

Particularities:	<p>Mentoring as well as English classes take place within the group of students in their first year of study, whereas Game Lab Lectures, Work Groups and Profil<sup>2</sup> Courses take place in inter-semester groups.</p> <p>A general introduction to the Reflection &amp; Community-Modules at CGL will be provided at the beginning of the first semester.</p>
Last update:	September 2020

## 7.5 Game Development Basics 2

Module Code:	BA.005
Module Title:	Game Development Basics 2
Type of Module:	Mandatory Module
ECTS Credits:	10 ECTS
Language:	English
Duration of Module:	8 Weeks
Recommended for Semester:	2
Frequency:	Annual
Person Responsible for this Module:	Prof. Björn Bartholdy
Lecturers:	Prof. Björn Bartholdy (Media Design), Prof. Bernd Diemer (Game Design), Prof. Dr. Emmanuel Guardiola (Game Design), Prof. Markus Hettlich (Game Informatics), Prof. Nanette Kaulig (3D Animation & CG Art for Games), Prof. Dr. Roland Klemke (Game Informatics), Prof. Dr. Cécile Le Prado (Sound Design for Games), Markus Wiemker (Game Design), Jonas Zimmer (Game Informatics)
Learning Outcome:	<p>Students are able to create a well-rounded game (including Art, Code, Design, Sound) by applying basics of visual design, 3D art and animation, sound design and sonic perception, fundamental principles and elements of narrative design, and by implementing basic game prototypes with and for game engines</p> <p>in order to have the artistic and technical abilities to later collaborate with students/professionals of other specializations in game development projects (e.g. in "Collaborative Project 2").</p>
Module Content:	<p>1) Game Arts: Design Basics II – for Example: Branding, CD, CI, the Design Process, Design Critique; Art and Animation Basics II: 3D Art and Animation</p> <p>2) Game Design: Theory and state of art of story and character design; basic narrative mechanics in games; game narratives based on assigned characters, scenarios, and narratives; mechanics, motivation and intent of different games and genres.</p> <p>3) Game Programming: Programming Basics II – programming with and for game engines, introduction to object-oriented programming applied to game development.</p> <p>4) Sound Design: Sound Design Basics II: sonic storytelling, and sonic specificity in game</p>
Teaching and Learning Methods:	Lectures, seminars, tutorials
Assessment Method:	Practical exercise, presentation, paper, written exam and/or oral exam in all courses of the module (weighted proportionally).
Workload (30 h $\hat{=}$ 1 ECTS credit):	300 hours

Contact hours:	115 hours
Self-study:	185 hours
Recommended Prerequisites:	BA.001 (The examination board decides on any exceptions.)
Recommended Reading:	...
Use of the Module in Other Degree Programs:	...
Particularities:	...
Last update:	September 2020

## 7.6 Basic Media and Game Studies 2

Module Code:	BA.006
Module Title:	Basic Media and Game Studies 2
Type of Module:	Mandatory Module
ECTS Credits:	5 ECTS
Language:	English
Duration of Module:	8 Weeks
Recommended for Semester:	2
Frequency:	Annual
Person Responsible for this Module:	Prof. Dr. Gundolf S. Freyermuth
Lecturers:	Prof. Dr. Gundolf S. Freyermuth (Media & Game Studies), Prof. Dr. Sonia Fizek (Player Research), Prof. Odile Limpach (Economics & Entrepreneurship for Games), Dr. André Czauderna (Player Research)
Learning Outcome:	<p><i>Media &amp; Game Studies</i></p> <p>The students are enabled to analyze cultural artefacts from the perspective of media history, media theory and cognitive psychology, and can place digital games in the larger context of the history of media and the arts, by</p> <ul style="list-style-type: none"> <li>• studying the history and theories of analog arts and media, specifically in regard to audiovisuality and narration,</li> <li>• critically analyzing and historically contextualizing works of audiovisual art, specifically linear audiovisions,</li> <li>• learning major concepts from cognitive psychology and how these can inform game development.</li> </ul> <p>As a result, the students can enrich creatively and intellectually their creative and professional work and are able to apply aesthetic theories of audiovisuality and narration to their game development and inform this process by using relevant concepts from cognitive psychology.</p> <p><i>Economics &amp; Entrepreneurship</i></p> <p>The students can create a marketing plan for a game project, by applying the traditional pillars of marketing mix, defining the target group, the marketing objectives and strategies</p>

	and planning marketing actions, identifying the relevant macro-economic factors of the videogame market, to finally be able to create, apply and support sales and marketing strategies for their future game projects and recognize early market chances and risks for game development.
Module Content:	<ol style="list-style-type: none"> <li>1) <ol style="list-style-type: none"> <li>a) School of Seeing/Looking: History of analog arts and media, particularly audio-visual media and games – Renaissance to Postmodernity.</li> <li>b) Introduction to Media Studies: Theories of analog art and media (inter alia: Aristotle, Kant, Hegel, Marx, Freud, Benjamin, McLuhan); mechanical and industrial media; from theories of the arts to theories of media.</li> </ol> </li> <li>2) Theories and practices of narration in linear media (theater, novel, film, tv series, etc.).</li> <li>3) Cognitive Psychology and Game Usability (with a special focus on the concepts of perception, attention, and memory).</li> <li>4) Economics and communications basics: communication theory, microeconomics and media management.</li> </ol>
Teaching and Learning Methods:	Lectures, seminars, presentations
Assessment Method:	Written homework or course work (blog, wiki, paper), presentation, linear or nonlinear audiovisual work (theory clip, interactive installation, etc.); written test or oral exam in all courses of the module (weighted proportionally)
Workload (30 h $\triangleq$ 1 ECTS credit):	150 hours
Contact hours:	41 hours
Self-study:	109 hours
Recommended Prerequisites:	BA.002 (The examination board decides on any exceptions.)
Recommended Reading:	...
Use of the Module in Other Degree Programs:	...
Particularities:	...
Last update:	September 2020

### 7.7 Collaborative Project 2 (Narrative Games)

Module Code:	BA.007
Module Title:	Collaborative Project 2 (Narrative Games)
Type of Module:	Mandatory Module
ECTS Credits:	10 ECTS
Language:	English
Duration of Module:	8 Weeks
Recommended for Semester:	2
Frequency:	Annual

Person Responsible for this Module:	Prof. Bernd Diemer, Prof. Dr. Gundolf S. Freyermuth
Lecturers:	Prof. Björn Bartholdy (Media Design), Prof. Bernd Diemer (Game Design), Prof. Dr. Sonia Fizek (Player Research), Prof. Dr. Gundolf S. Freyermuth (Media and Game Studies), Prof. Dr. Emmanuel Guardiola (Game Design), Prof. Markus Hettlich (Game Informatics), Prof. Nanette Kaulig (3D Animation & CG Art for Games), Prof. Dr. Roland Klemke (Game Informatics), Prof. Dr. Cécile Le Prado (Sound Design for Games), Prof. Odile Limpach (Economics & Entrepreneurship for Games)
Learning Outcome:	<p>Students are able to create a narrative game together with team members of other specializations</p> <p>by recalling knowledge on the game development process – from conception (pitching) and design to production, post-production and presentation; developing and implementing non-linear narrative (game) structures; writing and adapting fictional and documentary content; applying agile project management methods and reflecting on the role of a producer; sharing complementary tasks in interdisciplinary teams</p> <p>in order to be prepared for future collaborations in interdisciplinary teams developing games of this genre.</p>
Module Content:	<ul style="list-style-type: none"> <li>• Preproduction: high concept, pitching, concept, concept art, game design documentation, prototyping, testing;</li> <li>• Production: game design, game arts (character &amp; world design, animation, interface, audio design), programming/game informatics, level design;</li> <li>• Postproduction: documentation, post-mortem, publication, external pitching/communication;</li> <li>• Project Management: project management methods, project management software, relationships/communication with stakeholders, cost management.</li> </ul>
Teaching and Learning Methods:	Project work, seminar, individual and group mentoring
Assessment Method:	Prototype, documentation, presentation
Workload (30 h $\hat{=}$ 1 ECTS credit):	300 hours
Contact hours:	40 hours
Self-study:	260 hours
Recommended Prerequisites:	none
Recommended Reading:	...
Use of the Module in Other Degree Programs:	...
Particularities:	...
Last update:	September 2020

## 7.8 Reflection and Community 2

Module Code: BA.008

Module Title:	Reflection and Community 2
Type of Module:	Mandatory Module
ECTS Credits:	5 ECTS
Language:	English
Duration of Module:	16 weeks
Recommended for Semester:	2
Frequency:	Annual
Person Responsible for this Module:	Prof. Björn Bartholdy
Lecturers:	Prof. Björn Bartholdy (Media Design), Prof. Bernd Diemer (Game Design), Prof. Dr. Sonia Fizek (Player Research), Prof. Dr. Gundolf S. Freyermuth (Media and Game Studies), Prof. Dr. Emmanuel Guardiola (Game Design), Prof. Markus Hettlich (Game Informatics), Prof. Nanette Kaulig (3D Animation & CG Art for Games), Prof. Dr. Roland Klemke (Game Informatics), Prof. Dr. Cécile Le Prado (Sound Design for Games), Prof. Odile Limpach (Economics & Entrepreneurship for Games), Dr. Anne Laaredj-Campbell (English)
Learning Outcome:	<p>Students are able to analyze their own professional practice, synthesize a variety of perspectives from fields inside and outside of game development, and apply different key skills in areas such as self-reliance, organization, teamwork, and communication</p> <p>by reflecting on their own artistic and professional development, evaluation a variety of professional and academic perspectives, applying the English language in a game development context, and contributing to interdisciplinary and inter-semester projects in and beyond game development,</p> <p>in order to be prepared – intellectually, psychologically, and socially – for interdisciplinary and intercultural team work in the ever-changing labor market of the 21<sup>st</sup> century in and beyond the game industry.</p>
Module Content:	<ol style="list-style-type: none"> <li>1) Individual and Group Mentoring: with a main focus on student artistic and professional development in their respective area of specialization (Game Arts, Game Design, or Game Programming).</li> <li>2) Game Lab Lectures: 10 to 12 guest lectures offering a variety of perspectives from both game development and game studies.</li> <li>3) English for Game Developers: Once Upon a Time – From fairy tales to video games (Listening and reading comprehension, Team work collaboration, game pitch presentation)</li> <li>4) Work Groups: In these self-organized groups, students contribute to CGL´s unique culture and community. Among others responsibilities, these groups support CGL´s endeavors in the areas of conferences, exhibitions, publishing, research, public relations, collecting and archiving of games and media, and more.</li> <li>5) ProfIL<sup>2</sup> Week: Within the university-wide ProfIL<sup>2</sup> Week students can choose an interdisciplinary and/or project-oriented course within or outside CGL.</li> </ol>
Teaching and Learning Methods:	Lectures, seminars, group work, individual and group mentoring

Assessment Method:	...
Workload (30 h $\triangleq$ 1 ECTS credit):	150 hours
Contact hours:	75 hours
Self-study:	75 hours
Recommended Prerequisites:	none
Recommended Reading:	...
Use of the Module in Other Degree Programs:	Parts of the module, i.e., the Game Lab Lectures, Work Groups and Profil <sup>2</sup> Courses are open to all CGL students. Mentoring and English are exclusively offered to BA Digital Games students.
Particularities:	Mentoring as well as English classes take place within the group of students in their first year of study, whereas Game Lab Lectures, Work Groups and Profil <sup>2</sup> Courses take place within inter-semester groups.
Last update:	September 2020

## 7.9 Mandatory Core Elective Module 1.1 Game Arts

Module Code:	BA.009.1
Module Title:	Mandatory Core Elective Module 1.1 Game Arts
Type of Module:	Elective
ECTS Credits:	10 ECTS
Language:	English
Duration of Module:	8 Weeks
Recommended for Semester:	3
Frequency:	Annual
Person Responsible for this Module:	Prof. Björn Bartholdy, Prof. Nanette Kaulig
Lecturers:	Prof. Björn Bartholdy (Media Design), Prof. Nanette Kaulig (3D Animation & CG Art for Games), Prof. Dr. Cécile Le Prado (Sound Design for Games)
Learning Outcome:	<p>Students are able to conceptualize and realize visual and sonic elements for games by</p> <ul style="list-style-type: none"> <li>• practicing life drawing with a focus on anatomy;</li> <li>• designing characters, environments, objects/props, interfaces, etc.;</li> <li>• modelling in a 3D software;</li> <li>• creating 3D in-game animations;</li> <li>• creating real and virtual soundscapes between sound and music;</li> <li>• designing dynamic virtual sound maps;</li> <li>• analyzing sound and music in games</li> </ul> <p>in order to have the subject-specific skills to create a multiplayer game in collaboration with Game Designers and Game Programmers.</p>
Module Content:	<ul style="list-style-type: none"> <li>• Life drawing - Anatomy, e.g. proportion, shading, modelling with clay</li> <li>• Creative Process - Visual Research, Idea Generation, Aesthetic Concept, Concept Art, Presentation</li> <li>• 3D Modeling &amp; Texturing</li> <li>• 3D Animation - in-game e.g. Idle, Jump, Walk</li> <li>• Virtual Sound maps &amp; soundscapes analysis,</li> <li>• Dynamic sound implementation I</li> </ul>
Teaching and Learning	Seminar, Tutorial



Methods:	
Assessment Method:	Practical exercise, presentation, paper and/or oral exam
Workload (30 h $\pm$ 1 ECTS credit):	300 hours
Contact hours:	80 hours
Self-study:	220 hours
Recommended Prerequisites:	BA.005 (The examination board decides on any exceptions.)
Recommended Reading:	...
Use of the Module in Other Degree Programs:	Parts of the module are used in MA Digital Games.
Particularities:	...
Last update:	September 2020

### 7.10 Mandatory Core Elective Module 1.2 Game Design

Module Code:	BA.009.2
Module Title:	Mandatory Core Elective Module 1.2 Game Design
Type of Module:	Elective
ECTS Credits:	5 ECTS
Language:	English
Duration of Module:	8 Weeks
Recommended for Semester:	3
Frequency:	Annual
Person Responsible for this Module:	Prof. Bernd Diemer, Prof. Dr. Emmanuel Guardiola
Lecturers:	Prof. Bernd Diemer (Game Design), Prof. Dr. Emmanuel Guardiola (Game Design), Markus Wiemker (Game Design), Prof. Dr. Cécile Le Prado (Sound Design for Games)
Learning Outcome:	<p>Students are able to</p> <ul style="list-style-type: none"> <li>• create a level for a game – by, for instance, developing a player persona, applying the rational level design methodology, designing a dynamic virtual sound map,</li> <li>• create a multiplayer prototype – by using social dynamics in player groups with novel multiplayer interactions</li> <li>• analyze games – by investigating relevant games with regard to their genre, fundamental structures, aesthetics and game design, sound and music design principles</li> </ul> <p>in order to have the subject-specific skills to create a multiplayer game in collaboration with Game Artists and Game Programmers.</p>
Module Content:	<ul style="list-style-type: none"> <li>• Multiplayer design (e.g. multiplayer design methodology and tools, iterative prototyping);</li> <li>• Analyses of multiplayer games (e.g. social interactions in local multiplayer, world changes based on player choice, interactive storytelling)</li> <li>• Level design and advanced prototyping (e.g. level design methodology and tools, iterative prototyping, playtesting)</li> <li>• Virtual Sound maps &amp; soundscapes analysis</li> <li>• Dynamic sound implementation I</li> </ul>

Teaching and Learning Methods:	Lecture, seminar, tutorial, practical exercises
Assessment Method:	Practical exercise, presentation, paper and/or oral exam
Workload (30 h $\hat{=}$ 1 ECTS credit):	300 hours
Contact hours:	80 hours
Self-study:	220 hours
Recommended Prerequisites:	BA.005 (The examination board decides on any exceptions.)
Recommended Reading:	...
Use of the Module in Other Degree Programs:	Parts of the module are used in MA Digital Games.
Particularities:	...
Last update:	September 2020

### 7.11 Mandatory Core Elective Module 1.3 Game Programming

Module Code:	BA.009.3
Module Title:	Mandatory Core Elective Module 1.3 Game Programming
Type of Module:	Elective
ECTS Credits:	10 ECTS
Language:	English
Duration of Module:	8 Weeks
Recommended for Semester:	3
Frequency:	Annual
Person Responsible for this Module:	Prof. Markus Hettlich, Prof. Dr. Roland Klemke
Lecturers:	Prof. Markus Hettlich (Game Informatics), Prof. Dr. Roland Klemke (Game Informatics), Prof. Dr. Cécile Le Prado (Sound Design for Games)
Learning Outcome:	<p>Students are able to conceptualize and realize data structures, algorithms, and simple interactions required for simple, local games by</p> <ul style="list-style-type: none"> <li>• applying object-oriented design principles</li> <li>• selecting and implementing appropriate dynamic and static data structures</li> <li>• implementing executable game prototypes</li> <li>• using development environments and frameworks</li> <li>• creating real and virtual soundscapes between sound and music</li> <li>• designing dynamic virtual sound maps</li> <li>• analyzing sound and music in games</li> </ul> <p>in order to have the subject-specific skills to create a local multiplayer game in collaboration with Game Artists and Game Designers.</p>
Module Content:	<ul style="list-style-type: none"> <li>• Programming I: object-oriented programming basics, debugging.</li> <li>• The Development Process: development environments, programming methodologies</li> <li>• Algorithms: algorithms and data structures for games.</li> <li>• Sound Design: dynamic sound implementation I, virtual sound maps &amp; soundscapes analysis</li> </ul>
Teaching and Learning	Lecture, seminar, tutorial, practical exercises

Methods:	
Assessment Method:	Homework or course work, presentation, practical exercises, documentation, written test or oral exam
Workload (30 h $\hat{=}$ 1 ECTS credit):	300 hours
Contact hours:	80 hours
Self-study:	220 hours
Recommended Prerequisites:	BA.005 (The examination board decides on any exceptions.)
Recommended Reading:	...
Use of the Module in Other Degree Programs:	Parts of the module are used in MA Digital Games.
Particularities:	...
Last update:	September 2020

### 7.12 Basic Media and Game Studies 3

Module Code:	BA.010
Module Title:	Basic Media and Game Studies 3
Type of Module:	Mandatory Module
ECTS Credits:	5 ECTS
Language:	English
Duration of Module:	8 Weeks
Recommended for Semester:	3
Frequency:	Annual
Person Responsible for this Module:	Prof. Dr. Gundolf S. Freyermuth
Lecturers:	Prof. Dr. Gundolf S. Freyermuth (Media & Game Studies), Prof. Dr. Sonia Fizek (Player Research), Prof. Odile Limpach (Economics & Entrepreneurship for Games)
Learning Outcome:	<p><i>Media &amp; Game Studies</i></p> <p>The students are enabled to critically analyze works of audiovisual art and contextualize these in the current transition from analog to digital culture, by:</p> <ul style="list-style-type: none"> <li>• studying the aesthetic, cultural, technological and economic history of digitalization,</li> <li>• evaluating relevant cultural, aesthetic and economic theories, especially nonlinear audiovisions,</li> <li>• participating in close-reading sessions to aid with understanding the relevant literature, analyzing play as a social activity, as well as player culture and identity.</li> </ul> <p>As a result, the students can effectively apply principles of nonlinear audiovisions to digital games and deepen their understanding of the underlying historical developments of digital culture, which allows them to contextualize their creative and professional work therein.</p>

*Economics & Entrepreneurship*

The students can analyze current market economic evolutions and elaborate their own hypothesis on future market developments by studying materials of various market research institutes, distinguishing between buyer behavior's influencing factors and proposing factors to be considered in different markets in order to assess the market potential of their game projects and choose accordingly the platforms and business models.

Module Content:	<ol style="list-style-type: none"> <li>1)             <ol style="list-style-type: none"> <li>a) School of Seeing/Looking: History Digital Arts and Media, particularly audiovisual media and games – Postmodernity to the Present.</li> <li>b) Introduction to Media Studies: Theories of digital art and media (inter alia: McLuhan, Kittler, Manovich, visual studies, contemporary film and game studies).</li> </ol> </li> <li>2) Playing as a social activity, Gaming Cultures</li> <li>3) Comparative media economics, development of markets and marketing strategies, management and communication principles.</li> </ol>
Teaching and Learning Methods:	Lecture, seminar, presentation, practical exercises
Assessment Method:	Written homework or course work (blog, wiki, paper), presentation, linear or nonlinear audiovisual work (theory clip, interactive installation etc.); written test or oral exam in all courses of the module (weighted proportionally)
Workload (30 h $\hat{=}$ 1 ECTS credit):	150 hours
Contact hours:	41 hours
Self-study:	109 hours
Recommended Prerequisites:	BA.006 (The examination board decides on any exceptions.)
Recommended Reading:	...
Use of the Module in Other Degree Programs:	...
Particularities:	...
Last update:	September 2020

**7.13 Collaborative Project 3 (Multiplayer Games)**

Module Code:	BA.011
Module Title:	Collaborative Project 3 (Multiplayer Games)
Type of Module:	Mandatory Module
ECTS Credits:	10 ECTS
Language:	English
Duration of Module:	8 Weeks
Recommended for Semester:	3
Frequency:	Annual
Person Responsible for this	Prof. Markus Hettlich, Prof. Björn Bartholdy

Module:	
Lecturers:	Prof. Björn Bartholdy (Media Design), Prof. Bernd Diemer (Game Design), Prof. Dr. Sonia Fizek (Player Research), Prof. Dr. Gundolf S. Freyermuth (Media and Game Studies), Prof. Dr. Emmanuel Guardiola (Game Design), Prof. Markus Hettlich (Game Informatics), Prof. Nanette Kaulig (3D Animation & CG Art for Games), Prof. Dr. Roland Klemke (Game Informatics), Prof. Dr. Cécile Le Prado (Sound Design for Games), Prof. Odile Limpach (Economics & Entrepreneurship for Games)
Learning Outcome:	<p>Students are able to create a multiplayer game together with team members of other specializations</p> <p>by recalling knowledge on the game development process – from conception (pitching) and design to production, post-production and presentation; using knowledge of multiplayer game design; applying management and communication methods as well as agile project management methods and post mortem; sharing complementary tasks in interdisciplinary teams</p> <p>in order to be prepared for future collaborations in interdisciplinary teams developing games of this genre.</p>
Module Content:	<ul style="list-style-type: none"> <li>• Preproduction: high concept, pitching, concept, concept art, game design documentation, prototyping, testing;</li> <li>• Production: game design, game arts (character &amp; world design, animation, interface, audio design), programming/game informatics, level design;</li> <li>• Postproduction: documentation, post-mortem, publication, external pitching/communication.</li> <li>• Project Management: moderating conflicts, cost management, virtual project management, international standards.</li> </ul>
Teaching and Learning Methods:	Project work, seminar, individual and group mentoring
Assessment Method:	Prototype, documentation, presentation
Workload (30 h $\hat{=}$ 1 ECTS credit):	300 hours
Contact hours:	40 hours
Self-study:	260 hours
Recommended Prerequisites:	none
Recommended Reading:	...
Use of the Module in Other Degree Programs:	...
Particularities:	...
Last update:	September 2020

### 7.14 Reflection and Community 3

Module Code: BA.012

Module Title:	Reflection and Community 3
Type of Module:	Mandatory Module
ECTS Credits:	5 ECTS
Language:	English
Duration of Module:	16 Weeks
Recommended for Semester:	3
Frequency:	Annual
Person Responsible for this Module:	Prof. Björn Bartholdy
Lecturers:	Prof. Björn Bartholdy (Media Design), Prof. Bernd Diemer (Game Design), Prof. Dr. Sonia Fizek (Player Research), Prof. Dr. Gundolf S. Freyermuth (Media and Game Studies), Prof. Dr. Emmanuel Guardiola (Game Design), Prof. Markus Hettlich (Game Informatics), Prof. Nanette Kaulig (3D Animation & CG Art for Games), Prof. Dr. Roland Klemke (Game Informatics), Prof. Dr. Cécile Le Prado (Sound Design for Games), Prof. Odile Limpach (Economics & Entrepreneurship for Games), Dr. Anne Laaredj-Campbell (English).
Learning Outcome:	<p>Students are able to analyze their own professional practice, synthesize a variety of perspectives from fields inside and outside of game development, and apply different key skills in areas such as self-reliance, organization, teamwork, and communication</p> <p>by reflecting on their own artistic and professional development, evaluation a variety of professional and academic perspectives, applying the English language in a game development context, and contributing to interdisciplinary and inter-semester projects in and beyond game development,</p> <p>in order to be prepared – intellectually, psychologically, and socially – for interdisciplinary and intercultural team work in the ever-changing labor market of the 21st century in and beyond the game industry.</p>
Module Content:	<ol style="list-style-type: none"> <li>1) Individual and Group Mentoring: with a main focus on student artistic and professional development in their respective area of specialization (Game Arts, Game Design, or Game Programming).</li> <li>2) Game Lab Lectures: 10 to 12 guest lectures offering a variety of perspectives from both game development and game studies.</li> <li>3) English for Game Developers: Getting Ahead of the Game – Current Topics in the Industry (current topics in the field, argumentative writing, presentation skills)</li> <li>4) Work Groups: In these self-organized groups, students contribute to CGL's unique culture and community. Among others responsibilities, these groups support CGL's endeavors in the areas of conferences, exhibitions, publishing, research, public relations, collecting and archiving of games and media, and more.</li> <li>5) Profil<sup>2</sup> Week: Within the university-wide Profil<sup>2</sup> Week students can choose an interdisciplinary and/or project-oriented course within or outside CGL.</li> </ol>
Teaching and Learning Methods:	Lecture, seminar, group work, individual and group mentoring
Assessment Method:	...

Workload (30 h $\hat{=}$ 1 ECTS credit):	150 hours
Contact hours:	75 hours
Self-study:	75 hours
Recommended Prerequisites:	none
Recommended Reading:	...
Use of the Module in Other Degree Programs:	Parts of the module, i.e. the Game Lab Lectures, Work Groups and Profil <sup>2</sup> Courses are open to all CGL students. Mentoring and English are exclusively offered to BA Digital Games students.
Particularities:	Mentoring as well as English classes are held for students in their second year of study, whereas Game Lab Lectures, Work Groups and Profil <sup>2</sup> Courses take place in inter-semester groups.
Last update:	September 2020

### 7.15 Mandatory Core Elective Module 2.1: Game Arts

Module Code:	BA.013.1
Module Title:	Mandatory Core Elective Module 2.1: Game Arts
Type of Module:	Elective
ECTS Credits:	10 ECTS
Language:	English
Duration of Module:	8 Weeks
Recommended for Semester:	4
Frequency:	Annual
Person Responsible for this Module:	Prof. Björn Bartholdy, Prof. Nanette Kaulig
Lecturers:	Prof. Björn Bartholdy (Media Design), Prof. Nanette Kaulig (3D Animation & CG Art for Games), Prof. Dr. Cécile Le Prado (Sound Design for Games)
Learning Outcome:	<p>Students are able to conceptualize and realize visual and sonic elements for games by</p> <ul style="list-style-type: none"> <li>• practicing life drawing with a focus on e.g. gesture drawing, exaggeration, and clothing</li> <li>• designing characters, environments, objects/props, interfaces, etc.</li> <li>• modelling in a 3D software</li> <li>• creating 3D cinematic animations</li> <li>• customization of voices, characters, and emotions.</li> <li>• exploring experimental audiodriven gameplay and sonic interaction</li> <li>• practicing sound ergonomics and auditory display</li> </ul> <p>in order to have the subject-specific skills to create an experimental game in collaboration with Game Designers and Game Programmers.</p>
Module Content:	<ul style="list-style-type: none"> <li>• Life drawing - e.g. gesture drawing, exaggeration and clothing</li> <li>• Creative Process - Visual Research, Idea Generation, Aesthetic Concept, Concept Art, Presentation</li> <li>• 3D Modeling &amp; Texturing</li> <li>• 3D Animation - cinematic, e.g. facial, lipsync, camera</li> <li>• Sonification in auditory display</li> <li>• Voice directing, recording and broadcasting</li> </ul>
Teaching and Learning	Seminars, Tutorial

Methods:	
Assessment Method:	Practical exercise, presentation, paper and/or oral exam
Workload (30 h $\hat{=}$ 1 ECTS credit):	300 hours
Contact hours:	80 hours
Self-study:	220 hours
Recommended Prerequisites:	BA.009.1 (The examination board decides on any exceptions.)
Recommended Reading:	...
Use of the Module in Other Degree Programs:	Parts of the module are used in MA Digital Games.
Particularities:	...
Last update:	September 2020

## 7.16 Mandatory Core Elective Module 2.2 Game Design

Module Code:	BA.013.2
Module Title:	Mandatory Core Elective Module 2.2 Game Design
Type of Module:	Elective
ECTS Credits:	10 ECTS
Language:	English
Duration of Module:	8 Weeks
Recommended for Semester:	4
Frequency:	Annual
Person Responsible for this Module:	Prof. Bernd Diemer, Prof. Dr. Emmanuel Guardiola
Lecturers:	Prof. Bernd Diemer (Game Design), Prof. Dr. Emmanuel Guardiola (Game Design), Markus Wiemker (Game Design), Prof. Dr. Cécile Le Prado (Sound Design for Games)
Learning Outcome:	<p>Students will be able to</p> <ul style="list-style-type: none"> <li>• employ means to realize an intention – by identifying the mise-en-scene, i.e. the articulation between intention and means (e.g. signs and feedback, camera, genre, theme-specific mechanics)</li> <li>• analyze and use experimental methods to create games – by challenging the common practice of game design (e.g. unexpected play experiences through mechanics, emergent gameplay, generative games and novel user interfaces digital games)</li> <li>• create different kinds of prototypes for a pervasive game – by, for instance, taking into account relevant game design theories and relevant game mechanics, generating real and virtual soundscapes between sound and music,</li> <li>• explore experimental audio driven gameplay and sonic interaction</li> <li>• practice sound ergonomics and auditory display</li> </ul> <p>in order to have the subject-specific skills to create an experimental game in collaboration with Game Programmers and Game Artists.</p>
Module Content:	<ul style="list-style-type: none"> <li>• Analysis of mixed reality and experimental games (e.g. unexpected or unique mechanics, hybridization between genres)</li> <li>• Introduction to the design of new forms of games and interactivity (inter alia trans-media, pervasive games, ubiquitous games); e.g. use the ordinary life as game element</li> </ul>



	<ul style="list-style-type: none"> <li>• Analysis of the mise-en-scène of games and practice of specific means (e.g. signs and feedback)</li> <li>• Sonification in auditory display</li> <li>• Analyses of experimental audiodriven games and interactive media</li> <li>• Dynamic sound implementation II</li> </ul>
Teaching and Learning Methods:	Lecture, seminar, tutorial, practical exercises
Assessment Method:	Practical exercise, presentation, paper and/or oral exam
Workload (30 h $\triangleq$ 1 ECTS credit):	300 hours
Contact hours:	80 hours
Self-study:	220 hours
Recommended Prerequisites:	BA.009.2 (The examination board decides on any exceptions.)
Recommended Reading:	...
Use of the Module in Other Degree Programs:	Parts of the module are used in MA Digital Games.
Particularities:	...
Last update:	September 2020

### 7.17 Mandatory Core Elective Module 2.3 Game Programming

Module Code:	BA.013.3
Module Title:	Mandatory Core Elective 2.3 Game Programming
Type of Module:	Elective
ECTS Credits:	10 ECTS
Language:	English
Duration of Module:	8 Weeks
Recommended for Semester:	4
Frequency:	Annual
Person Responsible for this Module:	Prof. Markus Hettlich, Prof. Dr. Roland Klemke
Lecturers:	Prof. Markus Hettlich (Game Informatics), Prof. Dr. Roland Klemke (Game Informatics), Prof. Dr. Cécile Le Prado (Sound Design for Games)
Learning Outcome:	<p>Students are able to conceptualize and realize software architectures for experimental games by</p> <ul style="list-style-type: none"> <li>• using concurrent execution flow</li> <li>• applying network protocols for communication between different devices</li> <li>• understanding, analyzing and selecting required components (database systems, cloud infrastructures, server-side programming, etc.)</li> <li>• integrating different components into a multiplayer game pattern</li> <li>• exploring experimental audio driven gameplay and sonic interaction</li> <li>• practicing sound ergonomics and auditory display</li> </ul> <p>in order to have the subject-specific skills to create an experimental game in collaboration with Game Artists and Game Designers.</p>
Module Content:	1) Programming II: object-oriented programming, parallel programming, media programming.

	2) Networks and the Internet: history of the internet, architecture, protocols, network programming 3) Databases: overview, introduction to SQL and noSQL. 4) Cloud Computing 5) Online multiplayer games: compound programming of front end, back end, and database technologies. 6) Sonification in auditory display, analyses of experimental audio-driven games and interactive media, dynamic sound implementation II
Teaching and Learning Methods:	Lecture, seminar, tutorial, practical exercises
Assessment Method:	Homework or course work, presentation, practical exercises, documentation, written test or oral exam
Workload (30 h $\hat{=}$ 1 ECTS credit):	300 hours
Contact hours:	80 hours
Self-study:	220 hours
Recommended Prerequisites:	BA.009.3 (The examination board decides on any exceptions.)
Recommended Reading:	...
Use of the Module in Other Degree Programs:	Parts of the module are used in MA Digital Games.
Particularities:	...
Last update:	September 2020

## 7.18 Intermediate Media and Game Studies 1

Module Code:	BA.014
Module Title:	Intermediate Media and Game Studies
Type of Module:	Mandatory Module
ECTS Credits:	5 ECTS
Language:	English
Duration of Module:	8 Weeks
Recommended for Semester:	4
Frequency:	Annual
Person Responsible for this Module:	Prof. Dr. Gundolf S. Freyermuth
Lecturers:	Prof. Dr. Gundolf S. Freyermuth (Media & Game Studies), Prof. Dr. Sonia Fizek (Player Research), Prof. Odile Limpach (Economics & Entrepreneurship for Games)
Learning Outcome:	<p><i>Media &amp; Game Studies</i></p> <p>The students are enabled to critically evaluate the principles of artistic transfer and experimentation (specifically the history and methods of adaptation, transmedia production, and storytelling, as well as experimental art) and can independently analyze and prepare a given piece of media, by:</p> <ul style="list-style-type: none"> <li>• studying the history and theories of cultural and economic transfer and the principles of adaptation and transmedia in digital culture and digital gaming,</li> </ul>

- analyzing works of media in their transmediality while applying the principles of adaptation to a specific piece of media to create an original adaptation,
- participating in close-reading sessions to aid with understanding the relevant literature,
- researching and presenting a given work of media and related topics to the other students,
- studying theories and practices of player research.

As a result, the student can apply the processes of adaptation to digital games in a creative and professional capacity and strengthen their ability to create academic work and to inform their game development using practices of player research.

#### Economics & Entrepreneurship

The students can create a market research strategy for a game project by analyzing the research topics and proposing the most appropriate tools, identifying and analyzing the brand pillars of known videogames, examining the different parts of a communication strategy, practicing the writing of a press release document to be able to create, apply and support the analysis and positioning on the market of the future videogame projects they will work on, and to create and contribute to new intellectual property developments.

Module Content:	<ol style="list-style-type: none"> <li>1) History and theories of analog networking, history and theories of digital networking, history and theories of the public sphere, history and practices of audience building.</li> <li>2) History and theories of experimental art, history and theories of experimental practices; analysis of artistic experiments in analogue and digital media environments.</li> <li>3) Introduction to quantitative and qualitative methods for player research.</li> <li>4) Theories of organizations, theories of management, theories and practice of marketing research, brand building, regulation, and politics.</li> </ol>
Teaching and Learning Methods:	Lecture, seminar, practical exercises
Assessment Method:	Written homework or course work (blog, wiki, paper), presentation, linear or nonlinear audiovisual work (theory clip, interactive installation etc.); written test or oral exam in all courses of the module (weighted proportionally)
Workload (30 h $\hat{=}$ 1 ECTS credit):	150 hours
Contact hours:	41 hours
Self-study:	109
Recommended Prerequisites:	BA.010 (The examination board decides on any exceptions.)
Recommended Reading:	...
Use of the Module in Other Degree Programs:	...
Particularities:	...

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Last update: September 2020

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## 7.19 Collaborative Project 4 (Experimental Games)

Module Code:	BA.015
Module Title:	Collaborative Project 4 (Experimental Games)
Type of Module:	Mandatory Module
ECTS Credits:	10 ECTS
Language:	English
Duration of Module:	8 Weeks
Recommended for Semester:	4
Frequency:	Annual
Person Responsible for this Module:	Prof. Dr. Cécile Le Prado, Prof. Björn Bartholdy
Lecturers:	Prof. Björn Bartholdy (Media Design), Prof. Bernd Diemer (Game Design), Prof. Dr. Sonia Fizek (Player Research), Prof. Dr. Gundolf S. Freyermuth (Media and Game Studies), Prof. Dr. Emmanuel Guardiola (Game Design), Prof. Markus Hettlich (Game Informatics), Prof. Nanette Kaulig (3D Animation & CG Art for Games), Prof. Dr. Roland Klemke (Game Informatics), Prof. Dr. Cécile Le Prado (Sound Design for Games), Prof. Odile Limpach (Economics & Entrepreneurship for Games)
Learning Outcome:	<p>Students are able to create an experimental game together with team members of other specializations</p> <p>by recalling knowledge on the game development process – from conception (pitching) and design to production, post-production and presentation; experimenting with game development issues; questioning existing strategies, established procedures, and already acquired skills and abilities; setting goals within a team; reflecting on different forms of project management documentation; practicing risk assessment of a project; sharing complementary tasks in interdisciplinary teams</p> <p>in order to be prepared for future collaborations in interdisciplinary teams developing games of this genre.</p>
Module Content:	<ul style="list-style-type: none"> <li>• Pre-production: high concept, pitching, concept, concept art, game design document, prototyping, testing;</li> <li>• Production: game design, game arts (character &amp; world design, animation, interface, sound design), programming/game informatics, level design;</li> <li>• Post-production: documentation, post-mortem, publication, external pitching/communication.</li> <li>• Project management: team communication, organizational theories, risk assessment, managing multiple projects.</li> </ul>
Teaching and Learning Methods:	Project work, seminar, individual and group mentoring
Assessment Method:	Prototype, documentation, presentation
Workload	300 hours

(30 h $\hat{=}$ 1 ECTS credit):	
Contact hours:	40 hours
Self-study:	260 hours
Recommended Prerequisites:	none
Recommended Reading:	...
Use of the Module in Other Degree Programs:	...
Particularities:	...
Last update:	September 2020

## 7.20 Reflection and Community 4

Module Code:	BA.016
Module Title:	Reflection and Community
Type of Module:	Mandatory Module
ECTS Credits:	5 ECTS
Language:	English
Duration of Module:	16 Weeks
Recommended for Semester:	4
Frequency:	Annual
Person Responsible for this Module:	Prof. Björn Bartholdy
Lecturers:	Prof. Björn Bartholdy (Media Design), Prof. Bernd Diemer (Game Design), Prof. Dr. Sonia Fizek (Player Research), Prof. Dr. Gundolf S. Freyermuth (Media and Game Studies), Prof. Dr. Emmanuel Guardiola (Game Design), Prof. Markus Hettlich (Game Informatics), Prof. Nanette Kaulig (3D Animation & CG Art for Games), Prof. Dr. Roland Klemke (Game Informatics), Prof. Dr. Cécile Le Prado (Sound Design for Games), Prof. Odile Limpach (Economics & Entrepreneurship for Games), Dr. Anne Laaredj-Campbell (English).
Learning Outcome:	<p>Students are able to analyze their own professional practice, synthesize a variety of perspectives from fields inside and outside of game development, and apply different key skills in areas such as self-reliance, organization, teamwork, and communication</p> <p>by reflecting on their own artistic and professional development, evaluation a variety of professional and academic perspectives, applying the English language in a game development context, and contributing to interdisciplinary and inter-semester projects in and beyond game development,</p> <p>in order to be prepared – intellectually, psychologically, and socially – for interdisciplinary and intercultural team work in the ever-changing labor market of the 21st century in and beyond the game industry.</p>
Module Content:	<ol style="list-style-type: none"> <li>1) Individual and Group Mentoring: with a main focus on student artistic and professional development in their respective area of specialization (Game Arts, Game Design, or Game Programming).</li> </ol>

- 2) Game Lab Lectures: 10 to 12 guest lectures offering a variety of perspectives from both game development and game studies.
- 3) English for Game Developers: Job Application – Finding the Right Fit (CV/Resume, Cover letter, Interview practice)
- 4) Work Groups: In these self-organized groups, students contribute to CGL's unique culture and community. Among others responsibilities, these groups support CGL's endeavors in the areas of conferences, exhibitions, publishing, research, public relations, collecting and archiving of games and media, and more.
- 5) Profil<sup>2</sup> Week: Within the university-wide Profil<sup>2</sup> Week students can choose an interdisciplinary and/or project-oriented course within or outside CGL.

Teaching and Learning Methods:	Lecture, seminar, group work, individual and group mentoring
Assessment Method:	...
Workload (30 h $\hat{=}$ 1 ECTS credit):	150 hours
Contact hours:	75 hours
Self-study:	75 hours
Recommended Prerequisites:	none
Recommended Reading:	...
Use of the Module in Other Degree Programs:	Parts of the module, i.e. the Game Lab Lectures, Work Groups and Profil <sup>2</sup> Courses are open to all CGL students. Mentoring and English are exclusively offered to BA Digital Games students.
Particularities:	Mentoring as well as English classes are held for students in their second year of study, whereas Game Lab Lectures, Work Groups and Profil <sup>2</sup> Courses take place in inter-semester groups.
Last update:	September 2020

## 7.21 Elective Module Exchange and Practice: Internship

Module Code:	BA.017.1
Module Title:	Elective Module Exchange and Practice: Internship
Type of Module:	Elective Module
ECTS Credits:	25 ECTS
Language:	English
Duration of Module:	17 Weeks
Recommended for Semester:	5
Frequency:	Annual
Person Responsible for this Module:	Prof. Dr. Emmanuel Guardiola
Lecturers:	-
Learning Outcome:	Students are able to co-create games in a real-world industry setting, evaluate practical

	work flows, and apply their soft skills (e.g. communication, organization, time management, etc.) by testing and strengthening their newly acquired knowledge and skills in a professional working environment within the game industry (AAA Company, Indie Game Developer, Serious Game Studio, etc.) or a related (creative) industry in order to improve their employability.
Module Content:	Internship at a game developer (or at another game-related company)
Teaching and Learning Methods:	Internship
Assessment Method:	Internship, documentation
Workload (30 h $\hat{=}$ 1 ECTS credit):	750 hours
Contact hours:	0
Self-study:	750 hours
Recommended Prerequisites:	BA.013, BA.014, BA.015 (The examination board decides on any exceptions.)
Recommended Reading:	...
Use of the Module in Other Degree Programs:	...
Particularities:	<p>In the fifth semester, students may choose between three compulsory elective modules: Internship (BA.017.1), Exchange Semester (BA.017.2), and Self-Initiated Project (BA.017.3).</p> <p>The internship length has to comprise of at least 600 hours and cannot be longer than one semester. Internships can be done within the game industry (AAA Company, Indie Game Developer, Serious Game Studio, etc.), but also within a related (creative) industry or a relevant field in another industry.</p> <p>Each student choosing the internship option has to find a mentoring professor who accepts their proposal (i.e., topic and details of company and details of internship) and in turn agrees to mentor them throughout the semester. The registration deadline is August 31. A form can be found in Spaces. In the beginning of their practice semester, students must also register via PSSO.</p> <p>Parallel to their industry work, all students are required to document their learning processes through regular blog posts in Spaces. The scope of this requirement will be announced by the module director at the beginning of the winter semester (September 1) by email.</p> <p>In the first week of the following summer semester, students will give a 10 min presentation on their internship to the CGL community, including in particular the upcoming generation of peers (exchange and practice presentation).</p> <p>More information on the internship semester as well as the registration form can be found in Spaces.</p> <p>BA.017 must be studied in combination with BA.018.</p>
Last update:	September 2020

## 7.22 Elective Module Exchange and Practice: Exchange Semester

Module Code:	BA.017.2
Module Title:	Elective Module Exchange and Practice: Exchange Semester
Type of Module:	Elective Module
ECTS Credits:	25 ECTS
Language:	English
Duration of Module:	17 Weeks
Recommended for Semester:	5
Frequency:	Annual
Person Responsible for this Module:	Prof. Nanette Kaulig, Dr. André Czauderna (Exchange Coordinator)
Lecturers:	Instructors of the host university
Learning Outcome:	Students deepen their expertise in a particular area and/or broaden their academic/cultural perspective by studying either in another game program or a discipline/field relevant to game development (such as Computer Science, Interaction Design, Digital Arts, Film Studies, Art History, Media Education, Psychology, etc.) in order to improve their employability and grow as a personality.
Module Content:	Areas of study relevant to game development (such as Game Arts, Game Design, Game Programming, Game Studies, Digital Arts, Film Studies, Interaction Design, Media Education, Media Economics, etc.)
Teaching and Learning Methods:	Depends on courses offered at the university abroad
Assessment Method:	Depends on courses offered at the university abroad, documentation of the exchange semester
Workload (30 h $\hat{=}$ 1 ECTS credit):	750 hours
Contact hours:	750 hours
Self-study:	0
Recommended Prerequisites:	BA.013, BA.014, BA.015 (The examination board decides on any exceptions.)
Recommended Reading:	...
Use of the Module in Other Degree Programs:	...
Particularities:	<p>In the fifth semester, students may choose between three compulsory elective modules: Internship (BA.017.1), Exchange Semester (BA.017.2), and Self-Initiated Project (BA.017.3).</p> <p>Parallel to their course work all students are required to document their learning processes through regular blog posts in Spaces. The scope of this requirement will be announced by the module directors at the beginning of the winter semester (September 1) by email.</p> <p>In the first week of the following summer semester, students will give a 10 min presentation on their exchange semester to the CGL community, including in particular the upcoming generation (exchange and practice presentation).</p>



More information on the internship semester (including CGL's partner universities) can be found in Spaces.

An info event on the exchange option of semester 5 is always offered at the end of the winter term when students are still in their third semester (this is typically in late-January). CGL's internal application procedure then takes place in the semester break prior to the summer term. Afterwards, early in the summer term, nominated students can apply to partner universities and Erasmus scholarships. In addition, at the beginning of their exchange semester, students also have to register at TH Köln via PSSO.

BA.017 must be studied in combination with BA.018.

Last update: September 2020

## 7.23 Elective Module Exchange and Practice: Self-Initiated Project

Module Code:	BA.017.3
Module Title:	Elective Module Exchange and Practice: Self-Initiated Project
Type of Module:	Elective Module
ECTS Credits:	25 ECTS
Language:	English
Duration of Module:	17 Weeks
Recommended for Semester:	5
Frequency:	Annual
Person Responsible for this Module:	Prof. Dr. Roland Klemke
Lecturers:	Prof. Dr. Roland Klemke
Learning Outcome:	Students are able to create games with publication potential, which could possibly be pitched to a publisher or on a crowdfunding website or be submitted for public funding by developing a game individually or collaboratively; evaluating practical work flows and applying their soft skills (e.g. communication, organization, time management, etc.); adapting their abilities to the necessities of a self-organized game project; applying project management skills as well as soft skills, particularly communication, teamwork, organization, time management, etc.; initiating and realizing a comprehensive project in order to improve their employability, entrepreneurial spirit, and creative personality.
Module Content:	Self-initiated collaborative or individual development of a digital game (or another relevant game-related piece of work) with publication potential over the period of one semester As an alternative to game development projects, students might pursue other game-related projects, such as animation or research projects (leading to potentially publishable work). Under certain circumstances, students may be granted with the opportunity to work on a series of portfolio pieces. The latter is, in particular, catered to Game Arts students and requires close supervision and confirmation of a professor in the particular specialization.
Teaching and Learning Methods:	Learning by Doing, mentoring, colloquium
Assessment Method:	Presentation, documentation
Workload (30 h $\hat{=}$ 1 ECTS credit):	750 hours
Contact hours:	30 hours

Self-study:	720 hours
Recommended Prerequisites:	BA.013, BA.014, BA.015 (The examination board decides on any exceptions.)
Recommended Reading:	...
Use of the Module in Other Degree Programs:	...
Particularities:	<p>In the fifth semester, students may choose between three compulsory elective modules: Internship (BA.017.1), Exchange Semester (BA.017.2), and Self-Initiated Project (BA.017.3).</p> <p>Each student choosing the self-initiated project option has to find a mentoring professor who accepts their proposal and in turn agrees to mentor them throughout the semester. The registration deadline is August 31. A form can be found in Spaces. In the beginning of their practice semester, students also have to register via PSSO.</p> <p>Parallel to their project work, all students are required to present and discuss their progress in a colloquium (which takes place circa 4 times per semester) as well as to document their learning processes through regular blog posts in Spaces. The scope of the requirements will be announced by the module director at the beginning of the winter semester (September 1) by syllabus.</p> <p>In the first week of the following summer semester, students will give a 10 min presentation on their self-initiated project to the CGL community, including in particular the upcoming generation (exchange and practice presentation).</p> <p>More information on the self-initiated project as well as the registration form can be found in Spaces.</p> <p>BA.017 must be studied in combination with BA.018.</p>
Last update:	September 2020

## 7.24 Reflection and Community 5

Module Code:	BA.018
Module Title:	Reflection and Community 5
Type of Module:	Mandatory Module
ECTS Credits:	5 ECTS
Language:	English
Duration of Module:	17 Weeks
Recommended for Semester:	5
Frequency:	Annual
Person Responsible for this Module:	Dr. André Czauderna
Lecturers:	...
Learning Outcome:	<p>Students are able to critically analyze their own personal and professional development (including an evaluation of their own strengths and weaknesses) by reflecting on their cultural and professional experiences from their exchange and practice semester in order to be able to identify areas they could improve on in forthcoming semesters as well as future professional practice.</p>

Module Content:	<ul style="list-style-type: none"> <li>• Individual and group mentoring focusing on students' experiences during their exchange and practice semester</li> <li>• Documentation of their learning processes through regular blog writing in Spaces</li> <li>• Final exchange and practice presentation; in which students should demonstrate structured and deep reflection on their individual experiences</li> </ul>
Teaching and Learning Methods:	Individual and group mentoring (partly through long distance communication), journal and blog writing, presentation
Assessment Method:	Written assignments (to be delivered in form of blog posts), presentation
Workload (30 h $\hat{=}$ 1 ECTS credit):	150 hours
Contact hours:	45 hours
Self-study:	105 hours
Recommended Prerequisites:	BA.013, BA.014, BA.015 (The examination board decides on any exceptions.)
Recommended Reading:	...
Use of the Module in Other Degree Programs:	...
Particularities:	Study of BA.018 has to be combined with BA.017 (1, 2 or 3).
Last update:	...

### 7.25 Mandatory Core Elective Module 3.1 Game Arts

Module Code:	BA.019.1
Module Title:	Mandatory Core Elective Module 3.1 Game Arts
Type of Module:	Elective
ECTS Credits:	10 ECTS
Language:	English
Duration of Module:	8 Weeks
Recommended for Semester:	6
Frequency:	Annual
Person Responsible for this Module:	Prof. Björn Bartholdy, Prof. Nanette Kaulig
Lecturers:	Prof. Björn Bartholdy (Media Design), Prof. Nanette Kaulig (3D Animation & CG Art for Games), Prof. Dr. Cécile Le Prado (Sound Design for Games)
Learning Outcome:	<p>Students are able to conceptualize and realize visual and sonic elements for games on an advanced level by</p> <ul style="list-style-type: none"> <li>• practicing life drawing with a focus on e.g. experimentation with different materials</li> <li>• designing characters, environments, objects/props, interfaces, etc.</li> <li>• modelling in a 3D software</li> <li>• creating 3D quadruped animations</li> <li>• developing 3D levels with a focus on audiovisual design</li> <li>• enhancing their ability for sound characterization</li> <li>• strengthening their ability to reflect and discuss audio perspective</li> <li>• practicing advanced audio implementation</li> </ul>

	in order to have the subject-specific skills to design and implement all required components for any kind of digital game.
Module Content:	<ul style="list-style-type: none"> <li>• Life drawing – e.g. use of different materials, marquette creation, drawing animals</li> <li>• Creative Process – Visual Research, Idea Generation, Aesthetic Concept, Concept Art, Presentation</li> <li>• 3D Modeling &amp; Texturing;</li> <li>• 3D Animation – quadruped animations</li> <li>• 3D level creation with a focus on audiovisual design</li> <li>• Urban soundscapes</li> <li>• Audio perspectives</li> <li>• Advanced audio implementation</li> </ul>
Teaching and Learning Methods:	Seminars, tutorial
Assessment Method:	Practical exercise, presentation, paper and/or oral exam
Workload (30 h $\hat{=}$ 1 ECTS credit):	300 hours
Contact hours:	80 hours
Self-study:	220 hours
Recommended Prerequisites:	BA.013.1 (The examination board decides on any exceptions.)
Recommended Reading:	...
Use of the Module in Other Degree Programs:	...
Particularities:	...
Last update:	September 2020

## 7.26 Mandatory Core Elective Module 3.2 Game Design

Module Code:	BA.019.2
Module Title:	Mandatory Core Elective Module 3.2 Game Design
Type of Module:	Elective
ECTS Credits:	10 ECTS
Language:	English
Duration of Module:	8 Weeks
Recommended for Semester:	6
Frequency:	Annual
Person Responsible for this Module:	Prof. Bernd Diemer, Prof. Dr. Emmanuel Guardiola
Lecturers:	Prof. Bernd Diemer (Game Design), Prof. Dr. Emmanuel Guardiola (Game Design), Prof. Dr. Cécile Le Prado (Sound Design for Games)
Learning Outcome:	<p>Students are able</p> <ul style="list-style-type: none"> <li>• to manage player models including the ones related to emotion, motivation, etc. – by, for instance, discussing existing scientific models, analyzing games in terms of these modules</li> <li>• to evoke basic and advanced emotions – by developing mechanics that trigger emotional responses in players</li> <li>• to conceptualize and realize an impact game – by, for instance, practicing player-</li> </ul>

	<p>centered approaches in the area of e.g. health games, educational games, etc.</p> <ul style="list-style-type: none"> <li>• to enhance their ability for sound characterization</li> <li>• to strengthen their ability to reflect and discuss audio perspective</li> <li>• to practice advanced audio implementation</li> </ul> <p>in order to have the subject-specific skills to design and implement all required components for any kind of digital game.</p>
Module Content:	<ul style="list-style-type: none"> <li>• Introduction to impact game design, for instance, game for health and education</li> <li>• How to model the player, in particular the emotional experience</li> <li>• Urban soundscapes</li> <li>• Audio perspectives</li> <li>• Advanced audio implementation</li> </ul>
Teaching and Learning Methods:	Lecture, seminar, tutorial, practical exercises
Assessment Method:	Practical exercise, presentation, paper and/or oral exam
Workload (30 h $\hat{=}$ 1 ECTS credit):	300 hours
Contact hours:	80 hours
Self-study:	220 hours
Recommended Prerequisites:	BA.013.2 (The examination board decides on any exceptions.)
Recommended Reading:	...
Use of the Module in Other Degree Programs:	...
Particularities:	...
Last update:	September 2020

### 7.27 Mandatory Core Elective Module 3.3 Game Programming

Module Code:	BA.019.3
Module Title:	Mandatory Core Elective Module 3.3 Game Programming
Type of Module:	Elective
ECTS Credits:	10 ECTS
Language:	English
Duration of Module:	8 Weeks
Recommended for Semester:	6
Frequency:	Annual
Person Responsible for this Module:	Prof. Markus Hettlich
Lecturers:	Prof. Markus Hettlich (Game Informatics), Prof. Dr. Cécile Le Prado (Sound Design for Games)
Learning Outcome:	<p>Students are able to conceptualize and realize a basic 3D game engine by</p> <ul style="list-style-type: none"> <li>• applying mathematical concepts for 3D environments</li> <li>• implementing engine components (such as input/output handling, core game loop)</li> <li>• understanding the render pipeline, and developing and applying appropriate shaders</li> <li>• enhancing their ability for sound characterization</li> </ul>

	<ul style="list-style-type: none"> <li>strengthening their ability to reflect and discuss audio perspective</li> <li>practicing advanced audio implementation</li> </ul> <p>in order to have the subject-specific skills to design and implement all required components for any kind of digital game.</p>
Module Content:	<ul style="list-style-type: none"> <li>Implementing fundamental 3D games without game engines</li> <li>Mathematics for Applications Development: linear algebra related to 3D games</li> <li>Advanced Rendering Techniques (e.g. shader programming)</li> <li>Urban soundscapes</li> <li>Audio perspectives</li> <li>Advanced audio implementation</li> </ul>
Teaching and Learning Methods:	Lecture, seminar, tutorial, practical exercises
Assessment Method:	Homework or course work, presentation, practical exercises, documentation, written test or oral exam
Workload (30 h $\hat{=}$ 1 ECTS credit):	300 hours
Contact hours:	80 hours
Self-study:	220 hours
Recommended Prerequisites:	BA.013.3 (The examination board decides on any exceptions.)
Recommended Reading:	...
Use of the Module in Other Degree Programs:	...
Particularities:	...
Last update:	September 2020

## 7.28 Intermediate Media and Game Studies 2

Module Code:	BA.020
Module Title:	Intermediate Media and Game Studies 2
Type of Module:	Mandatory Module
ECTS Credits:	7 ECTS
Language:	English
Duration of Module:	24 Weeks
Recommended for Semester:	6/7
Frequency:	Annual
Person Responsible for this Module:	Prof. Dr. Gundolf S. Freyermuth
Lecturers:	Lecturers: Prof. Dr. Gundolf S. Freyermuth (Media & Game Studies), Prof. Dr. Sonia Fizek (Player Research), Prof. Odile Limpach (Economics & Entrepreneurship for Games), Dr. André Czauderna (Player Research)
Learning Outcome:	<p><i>Media &amp; Game Studies</i></p> <p>The students are enabled to evaluate problems and questions arising in the context of their BA projects from the perspectives of media history and theory, independently analyze their own creative work from the perspective of media and game studies and contextualize it</p>

within theories of virtual reality and artificial intelligence, by

- studying central points of discussion in contemporary Game Studies,
- participating in seminar discussions to strengthen academic thinking, research and writing skills,
- studying literature concerning virtual reality and artificial intelligence.

As a result, students are adequately prepared to research and write original academic works, especially their upcoming bachelor thesis, and to apply concepts and theories of virtual reality and artificial intelligence to the production of digital games, especially serious games, and develop an awareness of the developments in these fields as they become increasingly culturally relevant and of importance to video game development.

*Economics & Entrepreneurship*

The students can analyze online community management methods, set up a team and organization for a live game, and evaluate publishing strategies, by

- examining the managerial and operational requirements of running a 'game as a service'
- studying the structure of a business plan
- practicing the reading and writing of a profit and loss calculation,

to be able to operate a 'game as a service' and animate a community of gamers successfully and judge the potential commercial value of their next project.

Module Content:	<ol style="list-style-type: none"> <li>1) New points of discussion in contemporary game studies and “on demand theory” – theoretical reflection of questions and problems arising in the context of student BA projects.</li> <li>2) Theories of the intersection of bodies and games</li> <li>3) Theories of Game-Based Learning</li> <li>4) Online Marketing Basics, for example: how to manage communities, social and viral marketing, value creation, monetization, branding; business planning basics and behavioral economics</li> <li>5) Presentation and discussion of the theoretical framework of student BA theses.</li> </ol>
Teaching and Learning Methods:	Seminar, presentations, practical exercises
Assessment Method:	Written homework or course work (blog, wiki, paper), written test or oral exam, presentation in all courses of the module (weighted proportionally)
Workload (30 h ≙ 1 ECTS credit):	210h
Contact hours:	57
Self-study:	153
Recommended Prerequisites:	BA.014 (The examination board decides on any exceptions.)
Recommended Reading:	...
Use of the Module in Other	...

Degree Programs:	
Particularities:	...
Last update:	September 2020

## 7.29 Collaborative Project 5 (Impact Games)

Module Code:	BA.021
Module Title:	Collaborative Project 5 (Impact Games)
Type of Module:	Mandatory Module
ECTS Credits:	10 ECTS
Language:	English
Duration of Module:	8 Weeks
Recommended for Semester:	6
Frequency:	Annual
Person Responsible for this Module:	Prof. Dr. Emmanuel Guardiola, Prof. Roland Klemke
Lecturers:	Prof. Björn Bartholdy (Media Design), Prof. Bernd Diemer (Game Design), Prof. Dr. Sonia Fizek (Player Research), Prof. Dr. Gundolf S. Freyermuth (Media and Game Studies), Prof. Dr. Emmanuel Guardiola (Game Design), Prof. Markus Hettlich (Game Informatics), Prof. Nanette Kaulig (3D Animation & CG Art for Games), Prof. Dr. Roland Klemke (Game Informatics), Prof. Dr. Cécile Le Prado (Sound Design for Games), Prof. Odile Limpach (Economics & Entrepreneurship for Games)
Learning Outcome:	<p>Students are able to create an impact game together with team members of other specializations</p> <p>by recalling knowledge on the game development process – from conception (pitching) and design to production, post-production and presentation; reflecting on games beyond entertainment; analyzing instructional strategies and learning theories; researching and applying real world facts and issues to the game development process; applying agile development methods, project management software, and professional documentation; sharing complementary tasks in interdisciplinary teams</p> <p>in order to be prepared for future collaborations in interdisciplinary teams developing games of this genre.</p>
Module Content:	<ul style="list-style-type: none"> <li>• Preproduction: high concept, pitching, concept, concept art, game design document, prototyping, testing;</li> <li>• Production: game design, game arts (character &amp; world Design, animation, interface, audio design), programming/game informatics, level design;</li> <li>• Postproduction: documentation, post-mortem, publication, external pitching/communication.</li> <li>• Project Management: roles in project execution, quality assurance I, project management software.</li> </ul>
Teaching and Learning Methods:	Project work, individual and group mentoring



Assessment Method:	Prototype, documentation, presentation
Workload (30 h $\hat{=}$ 1 ECTS credit):	300h
Contact hours:	40h
Self-study:	260h
Recommended Prerequisites:	none
Recommended Reading:	...
Use of the Module in Other Degree Programs:	...
Particularities:	...
Last update:	September 2020

### 7.30 Reflection and Community 6

Module Code:	BA.022
Module Title:	Reflection and Community 6
Type of Module:	Mandatory Module
ECTS Credits:	5 ECTS
Language:	English
Duration of Module:	16 Weeks
Recommended for Semester:	6
Frequency:	Annual
Person Responsible for this Module:	Prof. Björn Bartholdy
Lecturers:	Prof. Björn Bartholdy (Media Design), Prof. Bernd Diemer (Game Design), Prof. Dr. Sonia Fizek (Player Research), Prof. Dr. Gundolf S. Freyermuth (Media and Game Studies), Prof. Dr. Emmanuel Guardiola (Game Design), Prof. Markus Hettlich (Game Informatics), Prof. Nanette Kaulig (3D Animation & CG Art for Games), Prof. Dr. Roland Klemke (Game Informatics), Prof. Dr. Cécile Le Prado (Sound Design for Games), Prof. Odile Limpach (Economics & Entrepreneurship for Games), Dr. Anne Laaredj-Campbell (English)
Learning Outcome:	<p>Students are able to analyze their own professional practice, synthesize a variety of perspectives from fields inside and outside of game development, and apply different key skills in areas such as self-reliance, organization, teamwork, and communication</p> <p>by reflecting on their own artistic and professional development, evaluation a variety of professional and academic perspectives, applying the English language in a game development context, and contributing to interdisciplinary and inter-semester projects in and beyond game development,</p> <p>in order to be prepared – intellectually, psychologically, and socially – for interdisciplinary and intercultural team work in the ever-changing labor market of the 21<sup>st</sup> century in and beyond the game industry.</p>
Module Content:	<ol style="list-style-type: none"> <li>1) Individual and Group Mentoring: with a main focus on student artistic and professional development in their respective area of specialization (Game Arts, Game</li> </ol>

	Design, or Game Programming).
	2) Game Lab Lectures: 10 to 12 guest lectures offering a variety of perspectives from both game development and game studies.
	3) English for Game Developers: Academic Writing – Bachelor thesis prep course for game developers (Research paper: structure and organization, introduction paragraph and abstract writing practice, peer review)
	4) Work Groups: In these self-organized groups, students contribute to CGL's unique culture and community. Among others things, these groups support CGL's endeavors in the areas of conferences, exhibitions, publishing, research, public relations, collecting and archiving of games and media, etc.
	5) ProfIL <sup>2</sup> Week: Within the university wide ProfIL <sup>2</sup> Week students can choose an interdisciplinary and/or project-oriented course within or outside CGL.
Teaching and Learning Methods:	Lectures, seminars, group work, individual and group mentoring
Assessment Method:	...
Workload (30 h $\hat{=}$ 1 ECTS credit):	150h
Contact hours:	75h
Self-study:	75h
Recommended Prerequisites:	none
Recommended Reading:	...
Use of the Module in Other Degree Programs:	Parts of the module, i.e. the Game Lab Lectures, Work Groups and ProfIL <sup>2</sup> Courses are open to all CGL students. Mentoring and English are exclusively offered to BA Digital Games students.
Particularities:	Mentoring as well as English classes are held for students in their third year of study, whereas Game Lab Lectures, Work Groups and ProfIL <sup>2</sup> Courses take place in inter-semester groups.
Last update:	September 2020

### 7.31 Mandatory Core Elective Module 4.1 Game Arts

Module Code:	BA.023.1
Module Title:	Mandatory Core Elective Module 4.1 Game Arts
Type of Module:	Elective
ECTS Credits:	6 ECTS
Language:	English
Duration of Module:	10 Weeks
Recommended for Semester:	7
Frequency:	Annual
Person Responsible for this Module:	Prof. Nanette Kaulig
Lecturers:	Prof. Nanette Kaulig (3D Animation & CG Art for Games)

Learning Outcome:	Students are able to reflect on game arts within a general media and arts context by <ul style="list-style-type: none"> <li>discussing various approaches and workflows of other fields of art, e.g. fine arts, film, and theater</li> <li>creating portfolio pieces using their individually preferred art form</li> </ul> in order to being able to contextualize their own contributions to the whole game development process.
Module Content:	<ul style="list-style-type: none"> <li>Interdisciplinary Guest Lecture Series</li> <li>Portfolio Work</li> </ul>
Teaching and Learning Methods:	Seminars, Tutorial
Assessment Method:	Practical exercise, presentation, paper and/or oral exam
Workload (30 h $\hat{=}$ 1 ECTS credit):	180h
Contact hours:	50h
Self-study:	130h
Recommended Prerequisites:	BA.019.1 (The examination board decides on any exceptions.)
Recommended Reading:	...
Use of the Module in Other Degree Programs:	...
Particularities:	...
Last update:	September 2020

### 7.32 Mandatory Core Elective Module 4.2 Game Design

Module Code:	BA.023.2
Module Title:	Mandatory Core Elective Module 4.2 Game Design
Type of Module:	Elective
ECTS Credits:	6 ECTS
Language:	English
Duration of Module:	10 Weeks
Recommended for Semester:	7
Frequency:	Annual
Person Responsible for this Module:	Prof. Bernd Diemer, Prof. Dr. Emmanuel Guardiola
Lecturers:	Prof. Bernd Diemer (Game Design), Prof. Dr. Emmanuel Guardiola (Game Design)
Learning Outcome:	Students are able <ul style="list-style-type: none"> <li>to set up a proper research question and methodology – by, for instance, discussing past BA defenses, structuring their own work</li> <li>to reflect on the current state of game design – by, for instance, getting lectured by and discussing with members of the industry and academia</li> </ul> in order to being able to design and implement a Bachelor Project as well as to write a Bachelor Thesis.
Module Content:	1) Practical answers and solutions to questions and problems arising in the development of student BA projects. 2) Theoretical reflection of questions and problems arising in the development of student BA projects.

	3) Analyses and reflections on the current state of game design
Teaching and Learning Methods:	Lecture, seminar, tutorial, practical exercises
Assessment Method:	Practical exercise, presentation, paper and/or oral exam
Workload (30 h $\hat{=}$ 1 ECTS credit):	180h
Contact hours:	50h
Self-study:	130h
Recommended Prerequisites:	BA.0019.2 (The examination board decides on any exceptions.)
Recommended Reading:	...
Use of the Module in Other Degree Programs:	...
Particularities:	...
Last update:	September 2020

### 7.33 Mandatory Core Elective Module 4.3 Game Programming

Module Code:	BA.023.3
Module Title:	Mandatory Core Elective Module 4.3 Game Programming
Type of Module:	Elective
ECTS Credits:	6 ECTS
Language:	English
Duration of Module:	10 Weeks
Recommended for Semester:	7
Frequency:	Annual
Person Responsible for this Module:	Prof. Dr. Roland Klemke
Lecturers:	Prof. Dr. Roland Klemke (Game Informatics)
Learning Outcome:	<p>Students are able to select, conceptualize, and realize basic approaches of artificial intelligence for games by</p> <ul style="list-style-type: none"> <li>• applying multi-agent frameworks</li> <li>• implementing movement, navigation, and decision strategies</li> <li>• utilizing basic aspects of general procedural generation</li> <li>• understanding principles of fuzzy logic and utility theory</li> </ul> <p>in order to be able to design and implement games delivering advanced user experiences based on artificial intelligence.</p>
Module Content:	<ul style="list-style-type: none"> <li>• Introduction Game AI</li> <li>• Basic Agent Model</li> <li>• Agent Interaction</li> <li>• Movement / Navigation</li> <li>• Procedural Generation</li> <li>• Decisions under Certainty</li> <li>• Decisions under Uncertainty</li> <li>• Utility AI / Fuzzy Logic</li> </ul>
Teaching and Learning	Lecture, seminar, tutorial, practical exercises

Methods:	
Assessment Method:	Homework or course work, presentation, practical exercises, documentation, written test or oral exam
Workload (30 h $\hat{=}$ 1 ECTS credit):	180h
Contact hours:	50h
Self-study:	130h
Recommended Prerequisites:	BA.019.3 (The examination board decides on any exceptions.)
Recommended Reading:	...
Use of the Module in Other Degree Programs:	...
Particularities:	...
Last update:	September 2020

### 7.34 Bachelor Project

Module Code:	BA.024
Module Title:	Bachelor Project
Type of Module:	Mandatory Module
ECTS Credits:	12
Language:	English
Duration of Module:	17 Weeks
Recommended for Semester:	7
Frequency:	Annual
Person Responsible for this Module:	Prof. Björn Bartholdy, Prof. Dr. Gundolf S. Freyermuth
Lecturers:	Prof. Björn Bartholdy (Media Design), Prof. Bernd Diemer (Game Design), Prof. Dr. Sonia Fizek (Player Research), Prof. Dr. Gundolf S. Freyermuth (Media and Game Studies), Prof. Dr. Emmanuel Guardiola (Game Design), Prof. Markus Hettlich (Game Informatics), Prof. Nanette Kaulig (3D Animation & CG Art for Games), Prof. Dr. Roland Klemke (Game Informatics), Prof. Dr. Cécile Le Prado (Sound Design for Games), Prof. Odile Limpach (Economics & Entrepreneurship for Games)
Learning Outcome:	<p>Students are able to synthesize academic and practical work, i.e., create and complete a research and development project, by</p> <ul style="list-style-type: none"> <li>• using academic sources,</li> <li>• applying scholarly, and scientific methods,</li> <li>• presenting and reflecting their own work adequately in a written thesis,</li> <li>• designing a prototype, game design document, or similar (individually or collaboratively).</li> </ul> <p>As a result, the students have the ability to later practice applied research and development</p>

	in the interdisciplinary field of games.
Module Content:	Depending on the topic and focus of their BA project, students develop a theoretical or empirical approach, design an artistic concept, and realize a prototype. Each BA Project & Thesis consists of the following parts: a) Project (e.g. prototype or Game Design Document and documentation of your project) b) Thesis (i.e., an academic paper). The weight of both parts is suggested by the student (and confirmed by the supervisor and examination board). The smaller part must be at least 20 % of the overall workload. The ratio students decide upon will dictate how the project & thesis are graded. (See examination regulations and CGL BA Project & Thesis Guidelines.)
Teaching and Learning Methods:	Individual work or group work
Assessment Method:	Prototype, thesis
Workload (30 h $\hat{=}$ 1 ECTS credit):	360h
Contact hours:	-
Self-study:	360h
Recommended Prerequisites:	180 ECTS (The examination board decides on any exceptions.)
Recommended Reading:	...
Use of the Module in Other Degree Programs:	...
Particularities:	<p>An information session on the structure of the Bachelor Project will be offered in the previous summer term, when students are in semester sixth.</p> <p>More information and a registration form can be found in Spaces.</p> <p>BA.024 must be studied in combination with BA.025.</p>
Last update:	September 2020

### 7.35 Colloquium/Presentation

Module Code:	BA.025
Module Title:	Colloquium/Presentation
Type of Module:	Mandatory Module
ECTS Credits:	5 ECTS
Language:	English
Duration of Module:	17 Weeks
Recommended for Semester:	7
Frequency:	Every semester
Person Responsible for this Module:	Prof. Odile Limpach (Winter Term) / Prof. Björn Bartholdy (Summer Term)
Lecturers:	All
Learning Outcome:	Students are able to communicate, evaluate, and iterate upon their academic and professional work, by

- presenting and defending their academic and creative work in class;
- critically reflecting upon this work; considering feedback of peers and mentors;
- narrowing down research questions and development objectives and/or adapting their approaches in consideration of the feedback;
- discussing and constructively criticizing the creative and academic work of their peers

to develop the ability to participate actively in academic and professional discourses as well as improving one's own work in light of this discourse.

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**Module Content:**

The Colloquium offers BA students a platform to discuss their work with fellow students who share similar foci as well as get constant feedback from their supervisors.

The module is concluded by a presentation (in front of the CGL community) and an oral examination.

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**Teaching and Learning Methods:**

Mentoring, discussion, presentation

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**Assessment Method:**

Presentation (30 minutes), oral examination (up to 30 minutes)

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**Workload (30 h  $\hat{=}$  1 ECTS credit):**

150h

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**Contact hours:**

62h

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**Self-study:**

88h

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**Recommended Prerequisites:**

180 ECTS (The examination board decides on any exceptions.)

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**Recommended Reading:**

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**Use of the Module in Other Degree Programs:**

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**Particularities:**

BA.025 has to be studied in combination with BA.024.

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**Last update:**

September 2020

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### 7.36 Reflection & Community 7

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**Module Code:**

BA.026

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**Module Title:**

Reflection & Community

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**Type of Module:**

Mandatory Module

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**ECTS Credits:**

5 ECTS

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**Language:**

English

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**Duration of Module:**

16 Weeks

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**Recommended for Semester:**

7

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**Frequency:**

Annual

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**Person Responsible for this Module:**

Prof. Björn Bartholdy

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**Lecturers:**

Prof. Björn Bartholdy (Media Design), Prof. Bernd Diemer (Game Design), Prof. Dr. Sonia

	Fizek (Player Research), Prof. Dr. Gundolf S. Freyermuth (Media and Game Studies), Prof. Dr. Emmanuel Guardiola (Game Design), Prof. Markus Hettlich (Game Informatics), Prof. Nanette Kaulig (3D Animation & CG Art for Games), Prof. Dr. Roland Klemke (Game Informatics), Prof. Dr. Cécile Le Prado (Sound Design for Games), Prof. Odile Limpach (Economics & Entrepreneurship for Games)
Learning Outcome:	Students are able to create a professional portfolio as well as analyze their professional and academic status quo by expanding, improving, discussing their student portfolio; analyzing the labor market; reflecting on their own competencies as well as their expectations and preferences in order to have the ability to make an informed decision about their own professional and/or academic future as well as to apply for jobs, grants, and graduate studies.
Module Content:	Individual and group mentoring with a focus on student portfolios as well as future careers, both professional and academic.
Teaching and Learning Methods:	Individual and group mentoring
Assessment Method:	...
Workload (30 h $\hat{=}$ 1 ECTS credit):	150h
Contact hours:	50h
Self-study:	100h
Recommended Prerequisites:	none
Recommended Reading:	...
Use of the Module in Other Degree Programs:	...
Particularities:	...
Last update:	September 2020