GREEN GAME STUDIES
COURSE PACKAGE 4

CGL
Cologne Game Lab

Technology
Arts Sciences
TH Köln

Breda University
OF APPLIED SCIENCES

CHARLES
UNIVERSITY

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Course: "Green Games"

Module: Advanced Media and Game Studies (M.A. Digital Games Program, Semester 2)
Institution: TH Köln, Cologne Game Lab, Germany
Timeframe: Summer Term 2022 (April 2022-July 2022)

This course package is based on a syllabus of a course delivered in the M.A. Digital Games program within the Media & Game Studies module taught at Cologne Game Lab, TH Köln in summer term 2022. The package includes the following:

- Course description
- Learning outcomes
- Mandatory sources
- Assessment & grading criteria
- Course structure

This educational material has been created within the framework of the project "Greening Games. Building Higher Education Resources for Sustainable Video Game Production, Design & Critical Game Studies" (2021-2024) funded by the Federal Ministry of Education and Research in Germany *within the framework of the* Erasmus+ Programme of the European Union (KA220-HED – Cooperation Partnerships in Higher Education).

More information may be found at: *https://greeningames.eu*.

Course description

The impact of video games on the environment is unquestionable. However, scientific knowledge in the field remains dispersed and popular knowledge scarce. It is usually the "old media" such as print that are associated with a negative climate impact. As we will find out in this seminar, digital culture is as much anchored in the material world as its non-digital predecessors. The ubiquitous cloud computing is one of the most illustrative examples of the problem. The majority of existing data centers are powered by non-green energy sources. Digitality then carries with it a certain paradox – the more digitized our culture becomes, the more material resources it needs to sustain itself and the more CO2 it emits back to the environment.

This seminar is an attempt to rethink video games and gaming within the context of (un) sustainability of digital media. We will map out the crossovers between gaming and ecology from two perspectives:

1. **Green Games Industry**

   Leading research question: How does game development relate to sustainability? We will explore the idea of an eco-friendlier video game production, looking at existing green production guides.

2. **Ecological Game Design**

   Leading research question: How can games educate about climate change? We will explore diverse serious games about ecology and try to locate game mechanics and design patterns, which have the capacity to critically approach the complexity of climate-related problems.

Learning outcomes

The participants of this course will:

- reflect the question of sustainability and energy consumption in video games,
- map out and collect interdisciplinary scientific material on sustainability in gaming,
- rethink game design and gaming practice from the perspective of sustainability,
- work in research groups on one of the selected green gaming perspectives,
- submit essay projects, choosing a specific aspect of gaming to analyze within the context of sustainability.

Mandatory sources

Fayolle, A. 2023. Climate Games: The Developer's Field Guide. *Game Developer's Conference:* https://www.youtube.com/watch?v=nEEzUijhbkc

Gordon, Lewis. 2020. The many ways video game development impacts the climate crisis. *The Verge*. https://www.theverge.com/2020/5/5/21243285/video-games-climate-crisis-impact-xbox-playstation-developers

Gordon, L. 2019. The environmental impact of a Play Station4. *The Verge*: https://www.theverge.com/2019/12/5/20985330/ps4-sony-playstation-environmental-impact-carbon-footprint-manufacturing-25-anniversary.

Game Environmental Guide by game Verband: https://www.game.de/en/guides/game-environmental-guide

Green Games Guide by UKie: https://ukie.org.uk/sustainability

Neogames. 2022. A Finnish game industry model for calculating carbon footprint: https://neogames.fi/a-finnish-game-industry-model-for-calculating-your-game-developer-studios-co2-emissions/

Whittle, C., York, T., Escuadra, P.A., Shonkwiler, G., Bille, H., Fayolle, A., McGregor, B., Hayes, S., Knight, F., Wills, A., Chang, A., & Fernández Galeote, D. 2022. *The Environmental Game Design Playbook (Presented by the IGDA Climate Special Interest Group)*. International Game Developers Association.

Assessment & Grading criteria

Requirements

- All students have to actively participate in the sessions.
- All students have to study and analyze the assigned reading material in a way that enables them to actively and creatively participate in the seminar discussions; i.e., developing their own thoughts and theoretical insights.
- All students have to complete the final assignment – an academic podcast (see formal details below).

Grading

Essay (100%): Students will choose an aspect of green gaming (production, game design, ecological games) and explore the selected perspective within the context of sustainability. The essay may be a descriptive work mapping out the field, an argumentative intervention into the topic, an opinion piece or a green video game review.

Format and submission: between 2250 and 2500 words (excluding bibliography). Make sure you stay within the word-limit (10% length-adjustment is allowed). Submit your essay to our Spaces website.

Grading criteria

1. **Argument** – how well you develop your argument
2. **References** – how well you embed your argument in literature
3. **Structure** – does your written piece have a clear research question / statement; does it have introduction and conclusion?
4. **Style and form** – how well you write (appropriate language register, grammar, vocabulary)

Course structure

This course has a time format attuned to the specific needs of the M.A. Digital Games Program at Cologne Game Lab, TH Köln. Each seminar session comprises two 90-minute-long blocks (altogether, eight 45-minute-long sessions). Usually, the course is attended by up to 18 students.

In 2022 teaching at Cologne Game Lab still took place online. We used Zoom for seminar kick-offs, and Discord for asynchronous follow-up discussions. Miro served as a collaborative group work tool in three workshop sessions.

Contents

Seminar session 1: Introduction to Green Gaming
(didactic material planned for four 45-minute-long sessions)

Seminar session 2: Green Games Industry
(didactic material planned for four 45-minute-long sessions)

Seminar session 3: Ecological Game Design
(didactic material planned for four 45-minute-long sessions)

Seminar Session 1: Introduction to Green Gaming

Preparation

For this session, students are expected read the following text:

Gordon, Lewis. 2020. The many ways video game development impacts the climate crisis. *The Verge.*

Lecture

Topic: Introduction to Eco-Critical Game Studies I (45 minutes)

Seminar

***Activity 1**: Warm-up discussion based on the source from the list (30 minutes)*

***Activity 2**: Group work (60 minutes)*

Task 1: Divide students into three groups (preferably up to 5 persons in a group) and ask each group to choose one aspect of game development or one practice (mentioned in the source text), e.g., cloud computing, offsetting, the energy use of consoles etc. Once they have selected their own point of interest, they should explore it in more depth and prepare a five-minute presentation to share with all the other groups.

***Note:** In the best-case scenario, additional sources are shared on Miro board with the students, so that they can dive into the task without the need to look for trustworthy materials.*

Discussion and summary

Moderate the discussion based on points shared by student groups. *(45 minutes)*

Seminar Session 2: Green Games Industry

Leading questions for the session

- How does game development relate to sustainability?

Sources

- Green Games Guide by UKie: https://ukie.org.uk/sustainability
- Game Environmental Guide by game Verband: https://www.game.de/en/guides/game-environmental-guide
- A Finnish game industry model for calculating carbon footprint: https://neogames.fi/a-finnish-game-industry-model-for-calculating-your-game-developer-studios-co2-emissions/

Seminar

***Activity 1**: Short recap discussion from last session, during which game development was discussed within the framework of climate crisis. (15 minutes)*

***Activity 2**: Exploring the idea of an eco-friendlier video game production, looking at three existing green production guides. The activity begins with a short presentation of the three guides and the explanation of the task. (15 minutes for introduction of guides and the framing of the task, 60 minutes for task 1)*

***Note:** If the session is online, Miro is a great tool for collaborative work with virtual post-its. If the session is taking place on-site, students can work with whiteboards and post-its.*

Task 1: Divide students into groups of 3-5 and ask each of the groups to focus on one of the three guides. The students should engage with the following questions:
Q1: What are scope 1, 2, and 3 emissions?
Q2: How to calculate carbon footprint of video game production? What aspects should be taken into account? Find an existing example of a company who calculated their emissions.
Q3: What aspects from the guide do you find particularly useful?
Q4: What are the biggest sources of emissions related to video game production / development?
Task 2: Each group should prepare a 10-minute presentation after which another 10 minutes will be reserved for a discussion. *(60 minutes)*

Summary

Moderate the discussion based on points shared by student groups. Collect all the points and make them available after the session over a collaborative work software, e.g., Sciebo or Miro. *(30 minutes)*

Seminar Session 3: Ecological Game Design

Preparation

For this session, students are expected to watch / read the following sources:

- Fayolle, A. 2023. Climate Games: The Developer's Field Guide. *Game Developer's Conference:* https://www.youtube.com/watch?v=nEEzUijhbkc

- Whittle, C., York, T., Escuadra, P.A., Shonkwiler, G., Bille, H., Fayolle, A., McGregor, B., Hayes, S., Knight, F., Wills, A., Chang, A., & Fernández Galeote, D. 2022. *The Environmental Game Design Playbook (Presented by the IGDA Climate Special Interest Group).* International Game Developers Association.

Leading questions for the session

- How can games educate about climate change?
- What design patterns work best in order to change players' behaviours?
- How to move from awareness to action?

Lecture

Topic: Ecological Game Design (30 minutes)

Seminar

***Activity 1**: Exploring game mechanics and design patterns, which have the capacity to critically approach the complexity of climate-related problems. (30 minutes)*

Task 1: Discussing the climate game toolkit for content creators introduced by Arnaud Fayolle (Ubisoft and IGDA)

***Note:** the toolkit may be found on page 50 of the Greening Games Education report: https://greeningames.eu/wp-content/uploads/2023/04/Greening-Games-Report-2023.pdf.*

***Activity 2**: Talk & Play session based on playing the game from the sources list (90 minutes)*

Task 1: Divide students into groups of 3-5 and ask each of the groups to play through the assigned ecological game, e.g., *Beecarbonize* (2023). During the playthrough session, students should take notes, paying attention to how the ecological message is communicated through the game via e.g., game rules (game loop), visual aesthetics, narrative elements (if present), and meta-gaming elements. Discuss the usefulness of "procedural rhetoric", a term coined by Ian Bogost to describe the way video games persuade via algorithmic procedures. *(60 minutes)*

Task 2: Ask each of the groups to share their impressions and findings. *(5-10 minutes per group; 30 minutes)*

Discussion and summary

Moderate the discussion based on points shared by student groups. *(30 minutes)*

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The project "Greening Games. Building Higher Education Resources for Sustainable Video Game Production, Design & Critical Game Studies" (2021-2024) supports educators in addressing the interdisciplinary nature of green digital gaming.

More information may be found at: https://greeningames.eu.

Authors (after project coordinator in alphabetical order): Sonia Fizek, Tuki Clavero, Laura Frings, Maria B. Garda, Mata Haggis-Burridge, Andrea Hubert, Lukáš Kolek, Karoliina Koskinen.

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