

The Hong Kong University of Science and Technology

Division of Arts and Machine Creativity (AMC)

AMCC5010, in Fall 2025/26

Course code: AMCC5010 (3 credits)
Course title: **Research Methodology in Arts and Machine Creativity**
Abbreviated title: **Research Methodology in AMC**
Course instructor: Wei XUE
Target students: RPG Students
Class quota: **30**
Grading requirement: Letter grades

Course description:

This course focuses on cultivating RPG students' research capabilities in the interdisciplinary field of Arts and Machine Creativity. It covers core content such as research mindsets, AI-assisted research tools, data processing techniques, academic writing, and specialized research methodologies in text, audio, and video-based creativity. Through lectures, workshops, seminars, and integrated research-report-and-presentation tasks, students will systematically master the research process of multi-modal creativity (text/audio/video) and lay a solid foundation for subsequent independent research.

Enrolment requirement: RPG Students.

Course Intended Learning Outcomes

On successful completion of the course, students will be able to:

1. **CILO-1:** Understand the research foundation, core concepts, and research mindsets in the field of Arts and Machine Creativity, and identify key research directions in text/audio/video-based creativity.
2. **CILO-2:** Proficiency in using AI tools for literature retrieval/review writing, and master data processing methods (e.g., web scraping, qualitative/quantitative analysis) for multi-modal creativity research.
3. **CILO-3:** Grasp specialized research methodologies for text/audio/video-based creativity, and select appropriate methods to design and implement research projects.
4. **CILO-4:** Develop the ability to write academic reports for multi-modal creativity research and deliver standardized presentations, effectively conveying research ideas and results.

Teaching and learning activities:

1. Lectures (35%): Explain core concepts (e.g., research methodologies for text/audio/video creativity), theoretical frameworks (e.g., multi-modal data analysis), and academic norms; analyze classic cases (e.g., AI video generation research).
2. Workshops (30%): Hands-on training on:
 - a. AI tools for multi-modal research (e.g., Semantic Scholar AI for literature, DALL-E for visual, Whisper for audio transcription);
 - b. Data processing (text/audio/video data crawling and analysis);
 - c. Report writing and presentation design (structuring research reports, visualizing audio/video research results).
3. Seminar Discussions (15%): Organize discussions on multi-modal creativity research cases (e.g., AI poetry vs. human poetry, machine-composed music evaluation) and literature gaps; encourage interdisciplinary insights.

4. Student Research & Presentations (20%): Guide students to complete text/audio/video-based creativity research projects (including report writing and in-class presentations); conduct peer reviews and teacher feedback to improve research and communication skills.

Planned Assessment & Weightings:

Assessment	Percentage
Literature Review Report	25%
Text-based Creativity Assignment	25%
Audio-based Creativity Assignment	25%
Visual-based Creativity Assignment	25%

Weekly Course Outline

Week	Topics	Briefly outline what this topic will cover (Include reading assignments if available)	Indicate which course ILOs this topic is related to (Write CILO-1, CILO-2, etc.)
1	Introduction and research mindsets	Course overview, the mindset of PhD research and goal of PhD training	CILO-1
2	Leveraging AI tools for literature reviews, reference management, and identifying research topics	AI tools for literature review, getting familiar with one field quickly.	CILO-1, CILO-2
3	Web scraping and data processing	Web scraping for multi-modal data, Data preprocessing for text/audio/video.	CILO-2
4	Paper writing and submission	Structure of academic papers, writing standards, submission and rebuttal	CILO-4
5	Research Methodology in Arts	Qualitative and interpretive methods in arts research, case studies in creative practices	CILO-1, CILO-3
6	Research Methodology in Arts	Experimental design in arts, interdisciplinary approaches combining arts and technology	CILO-1, CILO-3
7	Presentation and discussion of text-based creativity	Student presentations on text-based creative research, peer feedback and discussion	CILO-3, CILO-4
8	Research Methodology in Machine Creativity	Deep learning for text/audio/visual creativity, human-AI collaboration models	CILO-1, CILO-3
9	Research Methodology in Machine Creativity	AI models and tools for creative text and music generation, evaluation metrics	CILO-1, CILO-3
10	Presentation and discussion of audio-based creativity	Student presentations on audio-based creative research, peer feedback and discussion	CILO-3, CILO-4
11	Research Methodology in Arts and Machine Creativity	Integrated approaches combining artistic inquiry and machine learning techniques	CILO-1, CILO-3
12	Research Methodology in Arts and Machine Creativity	Ethics in AI creativity, critical reflection on machine-generated art	CILO-1, CILO-3
13	Presentation and discussion of visual-based creativity	Student presentations on visual-based creative research, peer feedback and discussion	CILO-3, CILO-4

Student learning resources:

Ismayilzada, M., Paul, D., Bosselut, A., & van der Plas, L. (2024). Creativity in ai: Progresses and challenges. *arXiv preprint arXiv:2410.17218*.

Cetinic, E., & She, J. (2022). Understanding and creating art with AI: Review and outlook. *ACM transactions on multimedia computing, communications, and applications (TOMM)*, 18(2), 1-22.

Du Sautoy, M. (2020). *The creativity code: Art and innovation in the age of AI*. Belknap Press.

Strunk Jr, W., & White, E. B. (2007). *The elements of style*. Penguin.