

AME 598 Multimodal Environments

Fall 2008

MW 10:30 – 11:45 @ Matthews Center Classroom

Instructors: Aisling Kelliher; aisling.kelliher@asu.edu; 396 Brickyard

David Birchfield; dbirchfield@asu.edu; 240A Matthews Center

Overview:

AME 598 Multimodal Environments explores the integration of sonic and visual modes in physically situated, interactive media systems. We explore questions including: How can we best couple multiple streams for a holistic experience? How do these constructed environments relate to our everyday experiences? What new challenges arise from multi-modal integration and interactivity? How do we evaluate and understand such hybrid physical/digital spaces? What are the social, cultural, and economic implications of developing multimodal environments? Course materials draw from current and historical examples of environments that are rooted in arts, education, media, and design. Selected readings provide a context for the relevant theoretical and perceptual issues and will form the basis for student led presentations and discussion. Formal class lectures will be accompanied by rapid in-class 'pressure projects'. Overall class assignments are project-based and emphasize exploration through the collaborative design and realization of new multimodal environments. The final project will also be written-up as a short paper (e.g. 4 pages ACM/CHI format) ready for submission to a standard or major media conference.

Prerequisites:

Curiosity and self-motivation. Students must be eager and willing to learn to design and develop multimodal environments in the custom-designed SCREM environment. This will involve familiarizing yourself with Dash/Java. As this class is an advanced, graduate-level course, we will not spend time covering basic or introductory topics. Those who lack sufficient background should expect to spend extra time to ramp up in particular areas.

Schedule:

This course will be divided into several overlapping units of variable emphasis and duration:
multimodal discourse, methodology + practice and experiential media computation

Multimodal Discourse

- Multimodal Communication (Kress)
- Multimodal Literacy (Jewitt)
- Multimodal Learning Models (Gardner)
- Visual Perception (Tufte, Dondis, Arnheim)
- Audio Perception (Oliveros, Truax)
- Audiovisual Perception (Chion)

Methodology + Practice

- Qualitative Methods + Observation (Savenye, Gaver)
- Design Principles + Practice (Dunne + Raby, Williams et al)
- Form + Composition (Tufte, Xenakis)
- Reflective Practice (Schoen)
- Evaluation + User Studies (Shneiderman)
- Documentation + Description (Davenport)

Experiential Media Computation

- Gaming + Serious Play (Salen, Jenkins)
- Immersive Environments (Shaw, Neimark)
- Social + Collaborative Computing (Donath)
- Tangible + Haptic Interfaces (Ishii)
- Performative Media Systems (Van Campen, Cage)

Recommended Schedule (may require some minor adjustments depending on class size etc.)

- August 25 Introduction + Expectations
- August 27 Qualitative Methods + Pressure Project
- September 1 NO CLASS
- September 3 Multimodal Learning Models Concept Map
- September 8 Design Methodology + Pressure Project
- September 10 Design Principles Pecha-Kucha
- September 15 Introduction to SMALLAB
- September 17 Multimodal Discourse Concept Map
- September 22 **First Project Presentation**
- September 24 Media Perception Pecha-Kucha
- September 29 Composition and Form + Pressure Project
- October 1 Media Perception Concept Map
- October 6 Reflective Practice + Pressure Project
- October 8 Multimodal Literacy Pecha-Kucha
- October 13 **First Project Due**
- October 15 Documentation + Pressure Project
- October 20 Documentation Concept Map
- October 22 Evaluation + Pressure Project
- October 27 User Studies Pecha-Kucha
- October 29 Gaming + Serious Play
- November 3 Gaming + Serious Play Concept Map
- November 5 **Second Project Presentation**
- November 10 Social + Collaborative Computing Pecha-Kucha
- November 12 Work Session
- November 17 Tangible + Haptic Interfaces Concept Map
- November 19 Work Session
- November 24 Immersive Environments Pecha-Kucha
- November 26 Work Session
- December 1 Paper draft due
- December 3 Work Session
- December 8 **Final Project Due**
- December 10 Reading Day
- **Final Exam**

Readings and Discussion Structure:

One reading and/or system will be assigned per week. These readings constitute the content of the course. For each reading, students are required to create and submit either a *concept map* or a *pecha-kucha presentation* that outlines four key components:

1. *Summarization of key points and innovations presented in the reading*
2. *Connections to related course content areas and assignments*
3. *Connections to personal research areas*
4. *Broader socio-cultural implications of the presented work*

These concept maps or presentations must be uploaded/submitted via email, cc'd to all students and instructors, by 8:00AM on the day prior to in-class discussion (typically Tuesday mornings preceding Wednesday discussions in class). Each week, one student will be selected as the discussion leader. The discussion leader will review all concept maps/presentations prior to the class meeting and will lead the discussion in class. Instructors will provide weekly feedback on the concept maps/presentations, evaluating their formulation according to the four criteria listed above. Concept maps should be constructed using *CMapTools*, a freeware, cross-platform tool and pecha-kucha presentations can be created in Powerpoint/Keynote.

The discussion leader will be evaluated according to the following three criteria:

1. *Was the concept map/presentation content appropriately synthesized and distilled? (50%)*
2. *Did new insights or ideas emerge from the session? (25%)*
3. *Were all participants engaged by the discussion? (25%)*

Projects:

Project-based work is framed as a vehicle for self-directed research and experimentation that enriches the core course content. Projects are a testbed for developing collaborative skills, applying new knowledge, and learning effective design practice. Projects are to be collaboratively pursued by teams of 3 students. Two primary projects will be assigned and should be realized as *functional experiential multimodal systems* that illustrate the application of knowledge acquired during the course. It is recommended that project work is undertaken as a continuous design process whereby the final project is an extension of the first. Student teams will formally present each project in class at two stages: (1) interim design/implementation phase, and (2) completed system phase.

In advance of each project presentation, students will be asked to prepare and submit a self-assessment of their work according to the following rubric:

1. *Performance as an exploratory learner*
 - a. *Increasing discipline specific knowledge*
 - b. *Increasing trans-disciplinary knowledge*
2. *Participation as an effective collaborator*
3. *Direct application of course content in the project*
4. *Effective use of an iterative design cycle (eg. planning, implementation, evaluation)*

Instructors will provide written feedback after each presentation, first assessing individuals and collaborative teams according to the above criteria, and second assessing the merits of the completed project. The final grade for each project will be a combination of the above factors.

Due Dates:

- First project presentation is due Monday, September 22
- Mid-term project is due Monday, October 13
- Second project presentation is due Wednesday, November 5
- Final project is due Monday, December 8

Final Paper:

A final short paper will be due on the final exam day. The paper should present research undertaken in the collaborative research projects. Each team will submit one short (4 page) paper that is co-authored by the team members. The paper should be in the short paper format of a specific journal or conference publication that the team members identify in consultation with instructors.

The paper will be evaluated according to the following criteria:

1. *Adherence to all selection criteria of the proposed publication venue*
2. *Appropriateness of the writing for the intended audience*
3. *Application of relevant course content and self-directed learning topics*

Overall Grading Rubric:

In-class Participation:	20%
Concept Maps, Pecha Kucha Presentations and Reading Discussion Leadership:	20%
Mid-term Project:	15%
Final Project:	25%
Final Paper:	20%

Course Materials:

Readings will be provided either electronically or as handouts in class.

Software:

For concept mapping of assigned readings, download *CMapTools* (free download)

<http://cmap.ihmc.us/download/>

For additional information on pecha-kuch presentations:

http://www.wired.com/techbiz/media/magazine/15-09/st_pechakucha#

<http://www.pecha-kucha.org/>

Hardware:

Projects may require audio and video recording and sensing devices. If necessary, these can be borrowed from the AME equipment pool. For now please contact David Lorig (david.lorig@asu.edu) to request equipment use.

Facilities:

You will need access to the AME Audio and Images Labs, Digital Arts Ranch, Matthews Classroom, and Brickyard throughout the semester. Please work with Tanya Watt (tanya.watt@asu.edu) if you encounter any access problems.