

# EMERGING MEDIA AND TECHNOLOGY (EMAT)

## EMAT 10010 TECHNOLOGY, EXPERIENCE DESIGN AND SOCIETY 3 Credit Hours

Through this course, students explore the emerging media, technology and user experience design industries and develop their own emerging media project plan. Additionally, students learn about the impact of emerging media, technology and design on culture and society. Topics include an introduction to ethical design, emerging media and globalization and technology's relationship and identity formation and maintenance.

**Prerequisite:** None.

**Schedule Type:** Lecture

**Contact Hours:** 3 lecture

**Grade Mode:** Standard Letter

## EMAT 10310 MY STORY ON THE WEB 3 Credit Hours

This course focuses on inspiring digital content creation and the tools that make it all happen. Students learn and use digital software tools from the Adobe Creative Cloud that allow them to establish a web presence based on personal and entrepreneurial interests by the end of the semester. Students post their projects on a website they design using an online content management system. Skills used in this class prepare students for the professional world, including website design, content management, storytelling, multimedia and such ethical considerations as intellectual property.

**Prerequisite:** None.

**Schedule Type:** Lecture

**Contact Hours:** 3 lecture

**Grade Mode:** Standard Letter

## EMAT 21000 INTRODUCTION TO WEB DESIGN 3 Credit Hours

Students will learn basic web design, using HTML (Hypertext Markup Language) and CSS (Cascading Style Sheets). Students are introduced to planning, designing and executing effective web pages, including developing web pages using web standards compliant HTML and CSS; leveraging CSS to style, enhance, organize and prioritize content; working with a wide range of content types and multimedia; and, producing small, functioning, multi-page websites.

**Prerequisite:** None.

**Schedule Type:** Lecture

**Contact Hours:** 3 lecture

**Grade Mode:** Standard Letter

## EMAT 23410 COGNITION IN TECHNOLOGY 3 Credit Hours

Introduction to the basics in human cognition as they affect technology and as technology affects human cognition. Addresses designing technologies to fit and enhance cognition, augmenting cognition with technology, and cognitive tools, as well as the impact of technology on various cognitive processes.

**Prerequisite:** None.

**Schedule Type:** Lecture

**Contact Hours:** 3 lecture

**Grade Mode:** Standard Letter

## EMAT 25310 CREATIVE CODING 3 Credit Hours

A hands-on introduction to computational thinking and object-oriented programming through the framework of creative coding. Students learn how to use variables, loops, functions and objects to make original works of creative code for screen-based media that move, interact and unfold over time. Emphasis in the course is placed on play and experimentation as critical facets of creative problem solving.

**Prerequisite:** None.

**Schedule Type:** Lecture

**Contact Hours:** 3 lecture

**Grade Mode:** Standard Letter

## EMAT 29995 SPECIAL TOPICS IN EMERGING MEDIA AND TECHNOLOGY 1-4 Credit Hours

(Repeatable for credit) Analysis of significant and current issues in emerging media and technology not covered in regular courses. Offered when opportunities and resources permit; the topic is announced when the course is scheduled.

**Prerequisite:** None.

**Schedule Type:** Lecture

**Contact Hours:** 1-4 lecture

**Grade Mode:** Standard Letter

## EMAT 32210 DATA IN EMERGING MEDIA AND TECHNOLOGY 3 Credit Hours

Students work through all levels of data analysis, including accessing data; combining and cleaning datasets; describing data through report-writing and visualization; inferential statistics; and, finally, making data-based decisions and conveying those decisions to a lay audience.

This course uses Python to process data and introduce students to report writing, sharing and documentation. Course's focus is to convey the strengths and limitations of both "big" and "small" data with an overarching goal of instilling ethical data practices for research and application.

**Prerequisite:** CS 13001 or CS 13012 or EMAT 25310 or IT 11002.

**Schedule Type:** Lecture

**Contact Hours:** 3 lecture

**Grade Mode:** Standard Letter

## EMAT 33310 HUMAN-COMPUTER INTERACTION 3 Credit Hours

A course intended to provide a broad foundation of HCI principles and perspectives relevant across multiple emerging media technologies.

Focuses on both understanding HCI through the presentation of major concepts, issues and principles in HCI across the full spectrum of user-centered design processes (conceptualizing, research, prototyping, evaluation, etc.) and designing experiences, with a focus on the user, needs and task analysis and evaluation.

**Prerequisite:** Sophomore standing.

**Schedule Type:** Lecture

**Contact Hours:** 3 lecture

**Grade Mode:** Standard Letter

## EMAT 39995 SPECIAL TOPICS IN EMERGING MEDIA AND TECHNOLOGY 1-4 Credit Hours

(Repeatable for credit) Analysis of significant and current issues in emerging media and technology not covered in regular courses. Offered when opportunities and resources permit; the topic is announced when the course is scheduled.

**Prerequisite:** None.

**Schedule Type:** Lecture

**Contact Hours:** 1-4 lecture

**Grade Mode:** Standard Letter

**EMAT 40095 SPECIAL TOPICS IN EMERGING MEDIA AND TECHNOLOGY 1-3 Credit Hours**

(Slashed with EMAT 50095) (Repeatable for credit) Analysis of significant and current issues in emerging media and technology not covered in regular courses. Offered when opportunities and resources permit; the topic is announced when the course is scheduled.

**Prerequisite:** None.

**Schedule Type:** Lecture

**Contact Hours:** 1-3 lecture

**Grade Mode:** Standard Letter

**EMAT 40999 INTERDISCIPLINARY PROJECTS (ELR) 3 Credit Hours**

(Repeatable for credit) In this hands-on course, students work in collaborative, interdisciplinary teams to complete a technology-based project that provides an innovative solution to a real-world problem. Whenever possible, connections will be made to project-based courses in emerging media and technology and beyond.

**Prerequisite:** Junior standing.

**Schedule Type:** Project or Capstone

**Contact Hours:** 3 other

**Grade Mode:** Standard Letter

**Attributes:** Experiential Learning Requirement

**EMAT 41000 RESPONSIVE WEB DESIGN 3 Credit Hours**

(Slashed with EMAT 51000) Students learn the fundamental principles for developing standards-based web sites from a mobile-first and content-first perspective. Explore each aspect of an agile-inspired process, during which students will learn each step of what it takes to build a website and ensure its functionality for its users in terms of both usability and performance.

**Prerequisite:** EMAT 21000.

**Schedule Type:** Lecture

**Contact Hours:** 3 lecture

**Grade Mode:** Standard Letter

**EMAT 41510 PROJECT MANAGEMENT AND TEAM DYNAMICS (WIC) 3 Credit Hours**

(Slashed with EMAT 51510) Introduces students to the basic elements of project management as it relates to software development and the corporate environment. Although not formally endorsed by The Project Management Institute, the course aligns with the project management lifecycle approach endorsed in The Project Management Book of Knowledge.

**Prerequisite:** CIS 24065 or CS 10062 or CS 13001 or CS 13012 or EMAT 25310 or ENGR 26220 or VCD 21000; and junior standing.

**Schedule Type:** Lecture

**Contact Hours:** 3 lecture

**Grade Mode:** Standard Letter

**Attributes:** Writing Intensive Course

**EMAT 41610 DIGITAL SYSTEMS SECURITY 3 Credit Hours**

(Slashed with EMAT 51610) Provides students with an understanding of the techniques, approaches, strategies, and computer security tactics that are used to ensure computer-related assets are protected from potential cyber compromise and are integrated with the business function. This course does not focus on the technical aspects of security (e.g., details of the operating system, data structures, or networks) but instead focuses more on computer security in a business context.

**Prerequisite:** EMAT 25310 or CS 13001 or CS 13012 or CIS 24065; and junior standing.

**Schedule Type:** Lecture

**Contact Hours:** 3 lecture

**Grade Mode:** Standard Letter

**EMAT 42210 WEB APPLICATION DEVELOPMENT 3 Credit Hours**

(Slashed with EMAT 52210) In this hands-on, project-based course, students are introduced to leading industry tools and frameworks being used to create commercial web applications today, including CSS frameworks, front-end frameworks and command line tools.

Lectures, coding demonstrations and weekly assignments culminate in a collaborative final project in which students are asked to conceptualize, design and implement a web application in a collaborative, team setting.

**Prerequisite:** EMAT 25310 and EMAT 41000.

**Schedule Type:** Lecture

**Contact Hours:** 3 lecture

**Grade Mode:** Standard Letter

**EMAT 49991 SEMINAR IN EMERGING MEDIA AND TECHNOLOGY 3 Credit Hours**

(Slashed with EMAT 59991) (Repeatable for credit) Society is driven, in part, by digital technology. The skills and techniques used in these fast-paced digital systems requires nimble and up-to-date skill sets. This course covers a rotating list of timely topics, including but not limited to mobile applications, content management systems, data visualizations and cutting-edge development frameworks. The student experience varies based on the topics from the rotation.

**Prerequisite:** CS 13001 or CS 13012 or EMAT 25310 or IT 11002.

**Schedule Type:** Seminar

**Contact Hours:** 3 lecture

**Grade Mode:** Standard Letter

**EMAT 49992 INTERNSHIP IN EMERGING MEDIA AND TECHNOLOGY (ELR) 1-6 Credit Hours**

(Repeatable for a maximum of 6 credit hours) A credit-bearing work experience with educational outcomes, utilizing and enhancing a student's academic learning in practical occupational situations. The student is expected to complete pre-determined assignments, which may include a weekly journal, final paper, or experience report.

**Prerequisite:** Junior standing; and special approval.

**Schedule Type:** Practical Experience

**Contact Hours:** 3-18 other

**Grade Mode:** Satisfactory/Unsatisfactory-IP

**Attributes:** Experiential Learning Requirement

**EMAT 49996 INDIVIDUAL INVESTIGATION IN EMERGING MEDIA AND TECHNOLOGY 1-3 Credit Hours**

(Repeatable for a maximum of 6 credit hours) Independent study carried out by a student under the supervision of a faculty member. Subject content, objectives, assignments and evaluation methods may vary.

**Prerequisite:** Junior standing; and special approval.

**Schedule Type:** Individual Investigation

**Contact Hours:** 1-3 other

**Grade Mode:** Standard Letter-IP

**EMAT 50095 SPECIAL TOPICS IN EMERGING MEDIA AND TECHNOLOGIES 1-3 Credit Hours**

(Slashed with EMAT 40095) (Repeatable for credit) Analysis of significant and current issues in emerging media and technology not covered in regular courses. Offered when opportunities and resources permit; the topic is announced when the course is scheduled.

**Prerequisite:** Graduate standing.

**Schedule Type:** Lecture

**Contact Hours:** 1-3 lecture

**Grade Mode:** Standard Letter

**EMAT 51000 RESPONSIVE WEB DESIGN 3 Credit Hours**

(Slashed with EMAT 41000) Students learn the fundamental principles for developing standards-based web sites from a mobile-first and content-first perspective. Explore each aspect of an agile-inspired process, during which students will learn each step of what it takes to build a website and ensure its functionality for its users in terms of both usability and performance.

**Prerequisite:** Graduate standing.

**Schedule Type:** Lecture

**Contact Hours:** 3 lecture

**Grade Mode:** Standard Letter

**EMAT 51510 PROJECT MANAGEMENT AND TEAM DYNAMICS 3 Credit Hours**

(Slashed with EMAT 41510) Introduces students to the basic elements of project management as it relates to software development and the corporate environment. Although not formally endorsed by The Project Management Institute, the course aligns with the project management lifecycle approach endorsed in The Project Management Book of Knowledge.

**Prerequisite:** Graduate standing.

**Schedule Type:** Lecture

**Contact Hours:** 3 lecture

**Grade Mode:** Standard Letter

**EMAT 51610 DIGITAL SYSTEMS SECURITY 3 Credit Hours**

(Slashed with EMAT 41610) Provides students with an advanced understanding of the techniques, approaches, strategies, and computer security tactics that are used to ensure computer-related assets are protected from potential cyber compromise and are integrated with the business function. This course does not focus on the technical aspects of security (e.g., details of the operating system, data structures, or networks) but instead focuses more on computer security in a business context.

**Prerequisite:** Graduate standing.

**Schedule Type:** Lecture

**Contact Hours:** 3 lecture

**Grade Mode:** Standard Letter

**EMAT 52210 WEB APPLICATION DEVELOPMENT 3 Credit Hours**

(Slashed with EMAT 42210) In this hands-on, project-based course, students are introduced to leading industry tools and frameworks being used to create commercial web applications today, including CSS frameworks, front-end frameworks and command line tools. Lectures, coding demonstrations and weekly assignments culminate in a collaborative final project in which students are asked to conceptualize, design and implement a web application in a collaborative, team setting.

**Prerequisite:** Graduate standing.

**Schedule Type:** Lecture

**Contact Hours:** 3 lecture

**Grade Mode:** Standard Letter

**EMAT 59991 SEMINAR IN EMERGING MEDIA AND TECHNOLOGY 3 Credit Hours**

(Slashed with EMAT 49991) (Repeatable for credit) Society is driven, in part, by digital technology. The skills and techniques used in these fast-paced digital systems requires nimble and up-to-date skill sets. This course covers a rotating list of timely topics, including but not limited to mobile applications, content management systems, data visualizations and cutting-edge development frameworks. The student experience varies based on the topics from the rotation.

**Prerequisite:** Graduate standing.

**Schedule Type:** Seminar

**Contact Hours:** 3 other

**Grade Mode:** Standard Letter

**EMAT 60010 FOUNDATIONS OF EMERGING MEDIA AND TECHNOLOGY 3 Credit Hours**

Course provides an overview of foundational theories applied in the interdisciplinary emerging media and technology industries through case studies and interdisciplinary discussions. Covers issues related to technology and society; developing interdisciplinary thinking skills; examining the industry structure; and developing data-based writing, reporting and presentation skills.

**Prerequisite:** Graduate standing.

**Schedule Type:** Lecture

**Contact Hours:** 3 lecture

**Grade Mode:** Standard Letter

**EMAT 60310 CREATIVE CODING FUNDAMENTALS 3 Credit Hours**

(Slashed with EMAT 80310) Course provides students hands-on experience, from applying foundational concepts in computational thinking and object-oriented programming to creating screen-based applications that move, interact and unfold over time. Specific topics covered include variables, loops, functions, classes and API's (Application Programming Interfaces). Particular emphasis is placed on play and experimentation as critical facets of creative problem solving and on computation as both an interdisciplinary and cross-disciplinary practice.

**Prerequisite:** Graduate standing.

**Schedule Type:** Lecture

**Contact Hours:** 3 lecture

**Grade Mode:** Standard Letter

**EMAT 60999 PROJECTS IN EMERGING MEDIA AND TECHNOLOGY 3 Credit Hours**

(Repeatable for credit) Provides an integrative experience, bringing together components of the required coursework in the major and concentration. Students perform individual work on a project, research paper, or practicum under the supervision of faculty from programs affiliated with the School of Emerging Media and Technology.

**Prerequisite:** Minimum overall GPA of 3.00; and graduate standing; and special approval.

**Schedule Type:** Project or Capstone

**Contact Hours:** 3 other

**Grade Mode:** Standard Letter

**EMAT 61010 ENTERPRISE ARCHITECTURE 3 Credit Hours**

Explores the alignment of IT and IS investment decisions with business goals. Enterprise architecture is increasingly used in industry as a result of the continued emergence of new technologies and ongoing pressures to reengineer business processes to achieve improved efficiency and greater customer focus. Enterprise architecture identifies the main components of an organization and the ways in which these components work together. The components include performance and strategy, people, business capabilities, applications, technology, knowledge and information, as well as financial and other resources.

**Prerequisite:** Graduate standing.

**Schedule Type:** Lecture

**Contact Hours:** 3 lecture

**Grade Mode:** Standard Letter

**EMAT 61310 ENTERPRISE ARCHITECTURE: ENTERPRISE ARCHITECTURE CENTER OF EXCELLENCE METHODOLOGY 2 Credit Hours**

Provides an introduction to the Enterprise Architecture Center of Excellence (EACOE) methodology for enterprise architecture and practical experience using that methodology. Students learn to model a business' current or desired future state using architectural models of goals, processes, materials, roles, locations and events. Implementation models are then developed to show relationships between architectural models, and the models are analyzed to identify move-ahead initiatives that include projects, gaps, overlaps and opportunities. These initiatives are prioritized to move the business to a desired future state. At the conclusion of the course, students have the option of submitting their course enterprise architecture artifacts to EACOE for certification. Pre/

**Prerequisite:** Graduate standing.

**Corequisite:** EMAT 61010.

**Schedule Type:** Lecture

**Contact Hours:** 2 lecture

**Grade Mode:** Standard Letter

**EMAT 61510 PROJECT MANAGEMENT LEADERSHIP 3 Credit Hours**

This course introduces advanced project management and project management leadership as it relates to software development and the corporate environment. The course focuses on the project management principles of effective planning, communication and motivation throughout the project lifecycle, and one key project management deliverable such as the project management plan. Although not formally endorsed by The Project Management Institute ([www.PMI.org](http://www.PMI.org)), the course will align with the project management lifecycle approach endorsed in The Project Management Book of Knowledge.

**Prerequisite:** EMAT 51510; and graduate standing.

**Schedule Type:** Lecture

**Contact Hours:** 3 lecture

**Grade Mode:** Standard Letter

**EMAT 62010 BUSINESS ARCHITECTURE 3 Credit Hours**

Exploration of the concept of business architecture as the critical component of enterprise architecture. Students learn how to develop an enterprise business architecture, to apply business architecture principles, methods and artifacts to support business IT alignment and to support change management needed to implement roadmaps and initiatives based on the business architecture. Students learn how different enterprise architecture frameworks approach the business layer.

**Prerequisite:** EMAT 61010; and graduate standing.

**Schedule Type:** Lecture

**Contact Hours:** 3 lecture

**Grade Mode:** Standard Letter

**EMAT 62110 INTERACTIVE DATA 3 Credit Hours**

(Slashed with EMAT 82110) Course applies students' prior experience in computational thinking and object-oriented programming to analytic, creative and interactive data experiences built in Python. Students address real-world data sets with computational, predictive and visual methods to draw insights and make decisions. Students move beyond deploying "solutions" to engaging and communicating data to constituents, user and decision makers alike. Concurrently, students discuss critical questions of modern data access, power, bias and privacy.

**Prerequisite:** Graduate standing.

**Schedule Type:** Lecture

**Contact Hours:** 3 lecture

**Grade Mode:** Standard Letter

**EMAT 62210 WEB DEVELOPMENT 3 Credit Hours**

Beginning with basic coverage of HTML, CSS, PHP, this course continues to explore those topics along with MySQL, jQuery, JavaScript and others. The course will also explore other topics relevant to web development in digital sciences, including security principles, hierarchy and visual design, responsive design, accessibility issues, interaction design, social media, and legal issues.

**Prerequisite:** CS 61002 or CS 61003 or ENGR 56330; and graduate standing.

**Schedule Type:** Lecture

**Contact Hours:** 3 lecture

**Grade Mode:** Standard Letter

**EMAT 64010 DATA ARCHITECTURE 3 Credit Hours**

Exploration of data modeling at the conceptual and logical level of abstraction within the context of enterprise architecture. Students learn to identify business needs in terms of data to gain a holistic view of organizational data. Students use Master Data Management (MDM) and approaches to define various data sources.

**Prerequisite:** EMAT 61010; and graduate standing.

**Schedule Type:** Lecture

**Contact Hours:** 3 lecture

**Grade Mode:** Standard Letter

**EMAT 64210 DATA SCIENCE 3 Credit Hours**

Overview of the concept of data mining, machine learning, big data, and data analytics, including the business challenges of working with data to solve real-world business problems. Students become familiar with the Cross Industry Standard Process for Data Mining (CRISP-DM). Fundamental concepts include Business Problem Understanding, Data Understanding, Data Preparation, Modeling, Evaluation, and Deployment. Data analytics in industry verticals are discussed, including science, intelligence and law enforcement, health, retail and financial services.

**Prerequisite:** Graduate standing.

**Schedule Type:** Lecture

**Contact Hours:** 3 lecture

**Grade Mode:** Standard Letter

**EMAT 65010 APPLICATION AND TECHNOLOGY ARCHITECTURE 3 Credit Hours**

Introduction to the concept of application and technology architectures in the context of enterprise architecture. Students learn how to define application and technology architecture principles and standards to support business performance, and to evaluate existing architectures in relation to performance goals. Students learn to work with application and technology artifacts and matrices, prepare a technology dictionary and develop an application architecture blueprint.

**Prerequisite:** EMAT 61010; and graduate standing.

**Schedule Type:** Lecture

**Contact Hours:** 3 lecture

**Grade Mode:** Standard Letter

**EMAT 69199 THESIS I 2-6 Credit Hours**

(Repeatable for a maximum of 6 credits hours) Thesis students must register for a total of 6 hours and may take 2 to 6 hours per semester distributed over several semesters if desired.

**Prerequisite:** Graduate standing; and special approval.

**Schedule Type:** Masters Thesis

**Contact Hours:** 2-6 other

**Grade Mode:** Satisfactory/Unsatisfactory-IP

**EMAT 69299 THESIS II 2 Credit Hours**

(Repeatable for credit) Thesis students must continue registration each semester until all degree requirements are met.

**Prerequisite:** EMAT 69199; and graduate standing.

**Schedule Type:** Masters Thesis

**Contact Hours:** 2 other

**Grade Mode:** Satisfactory/Unsatisfactory-IP

**EMAT 69992 INTERNSHIP IN EMERGING MEDIA AND TECHNOLOGY 1-3 Credit Hours**

(Repeatable for credit) A credit bearing work experience with educational outcomes, utilizing and enhancing a student's academic learning in practical occupational situations. The student is expected to complete pre-determined assignments, which may include a weekly journal, final paper or experience report.

**Prerequisite:** Graduate standing; and special approval.

**Schedule Type:** Practical Experience

**Contact Hours:** 3-9 other

**Grade Mode:** Satisfactory/Unsatisfactory-IP

**EMAT 69995 SPECIAL TOPICS IN EMERGING MEDIA AND TECHNOLOGY 1-4 Credit Hours**

(Repeatable for credit) Analysis of significant and current issues in digital sciences not covered in regular courses. Offered when opportunities and resources permit; the topic is announced when the course is scheduled.

**Prerequisite:** Graduate standing.

**Schedule Type:** Lecture

**Contact Hours:** 1-4 lecture

**Grade Mode:** Standard Letter

**EMAT 69996 INDIVIDUAL INVESTIGATION IN EMERGING MEDIA AND TECHNOLOGY 1-3 Credit Hours**

(Repeatable for credit) Independent study carried out by a student under the supervision of a faculty member. Subject content, objectives, assignments, and evaluation methods may vary.

**Prerequisite:** Graduate standing; and special approval.

**Schedule Type:** Individual Investigation

**Contact Hours:** 1-3 other

**Grade Mode:** Standard Letter-IP

**EMAT 80310 CREATIVE CODING FUNDAMENTALS 3 Credit Hours**

(Slashed with EMAT 60310) Course provides students hands-on experience, from applying foundational concepts in computational thinking and object-oriented programming to creating screen-based applications that move, interact and unfold over time. Specific topics covered include variables, loops, functions, classes and API's (Application Programming Interfaces). Particular emphasis is placed on play and experimentation as critical facets of creative problem solving, and on computation as both an interdisciplinary and cross-disciplinary practice.

**Prerequisite:** Doctoral standing.

**Schedule Type:** Lecture

**Contact Hours:** 3 lecture

**Grade Mode:** Standard Letter

**EMAT 82110 INTERACTIVE DATA 3 Credit Hours**

(Slashed with EMAT 62110) Course applies students' prior experience in computational thinking and object-oriented programming to analytic, creative and interactive data experiences built in Python. Students address real-world data sets with computational, predictive and visual methods to draw insights and make decisions. Students move beyond deploying "solutions" to engaging and communicating data to constituents, user and decision makers alike. Concurrently, students discuss critical questions of modern data access, power, bias and privacy.

**Prerequisite:** Doctoral standing.

**Schedule Type:** Lecture

**Contact Hours:** 3 lecture

**Grade Mode:** Standard Letter