

SUBCOMMITTEE C – AGENDA

Via Teams
October 2, 2025
1:30 p.m.

PART I – NEW ACADEMIC PROGRAMS AND PROGRAM CHANGES

COLLEGE OF EDUCATION

1. Request to establish a **Master of Arts** degree in **Statistics and AI: Applications in Education** in the Department of Counseling, Educational Psychology and Special Education. The University Committee on Graduate Studies (UCGS) recommended approval of this request at its September 15, 2025 meeting.

a. **Background Information:**

The Master of Arts in Statistics and AI: Applications for Education addresses the critical need for professionals skilled in leveraging artificial intelligence (AI) and advanced statistical methodologies to tackle complex challenges in educational research, policy, and practice. Modern educational systems generate vast amounts of data through assessments such as the National Assessment of Educational Progress (NAEP), Programme for International Student Assessment (PISA), and Trends in International Mathematics and Science Study (TIMSS). These datasets hold transformative potential for improving instructional strategies, resource allocation, and equity initiatives but require sophisticated analytical frameworks to unlock actionable insights. While Michigan State University (MSU) offers robust programs in statistics and computer science, none explicitly bridge these disciplines with applied educational research. This program fills this gap by integrating AI tools—such as natural language processing (NLP) and predictive analytics—with statistical rigor, enabling students to interpret and ethically apply data-driven solutions to real-world educational challenges. Unlike similar programs at peer institutions (e.g., University of Michigan, Purdue University), which prioritize theoretical or technical domains, this curriculum emphasizes interdisciplinary applications tailored to educational contexts, aligning with MSU's 2030 Strategic Plan ("Data-Driven Education") and the College of Education's focus on technology-enhanced learning and equitable outcomes.

The program is strategically positioned to advance MSU's commitment to interdisciplinary innovation by uniting expertise from education, statistics, and computer science. Existing MSU programs in quantitative methods lack dedicated training in applying AI and statistical tools to educational datasets, creating a disconnect between technical skills and sector-specific needs. Market analyses, including findings from the Online MA/MS Futures Task Force report, underscore growing demand for professionals who can translate data into policy and practice within K-12, higher education, and government agencies. State and district leaders increasingly seek evidence-based strategies to address disparities in student achievement, teacher retention, and resource distribution, yet lack personnel trained to harness AI-driven analytics. By equipping graduates to ethically design, evaluate, and communicate data-informed solutions, this program directly responds to these unmet needs while reinforcing MSU's leadership in educational research and technological integration.

b. **Academic Programs Catalog Text:**

The Master of Arts Degree in Statistics and AI: Applications for Education prepares professionals to tackle pressing challenges in education through a rigorous integration of advanced statistical methodologies and artificial intelligence (AI). Students gain expertise in analyzing diverse educational datasets—including state-level assessments (e.g., Michigan's Michigan Student Test of Educational Progress [M-STEP]), national benchmarks (National Assessment of Educational Progress[NAEP]), and international surveys (Programme for International Student Assessment [PISA], Trends in International Mathematics and Science Study [TIMSS])—to generate insights that directly inform policy reform, instructional innovation, and equitable resource allocation.

Admission

Applicants to the Master of Arts Degree in Statistics and AI: Applications for Education must meet the following criteria:

1. **Academic Performance:** A minimum cumulative grade-point average of 3.00 (on a 4.00 scale) in the final two years of undergraduate coursework and in any prior graduate-level study.

2. Statement of Purpose: A two-page statement articulating the applicant's professional goals, research interests, and alignment with the program's focus on applying statistical and AI methodologies to educational challenges.
3. Graduate Record Examination (GRE): Submission of GRE General Test scores is optional but encouraged. Scores may strengthen applications, particularly for candidates seeking to demonstrate quantitative aptitude or compensate for gaps in academic records (e.g., lower GPAs in quantitative course work).
4. English Language Proficiency: Non-native English speakers must submit scores from an approved English proficiency test (e.g., TOEFL, IELTS) meeting Michigan State University's minimum requirements.

Admission decisions are based on a holistic review of academic preparation, professional goals, and potential for success. Admission is competitive, with priority given to applicants whose goals align with the program's mission to advance equitable educational outcomes through AI and statistics. Meeting minimum criteria does not guarantee admission.

Requirements for the Master of Arts Degree in Statistics and AI: Applications in Education

A minimum of 30 credits is required for the degree under Plan B (without thesis). The student's program of study must be approved by the Program Director of the Master of Arts Degree in Statistics and AI: Applications in Education.

CREDITS

Students must complete the following:

1. All of the following courses (9 credits):

CEP	808	Introduction to Educational Measurement	3
CEP	834	Basic Ideas of Statistical Inference	3
CEP	835	Introduction to AI, Data Science, and Large-Scale Educational Data	3
2. Complete six courses totaling 18 credits from the following:

CEP	819	Experimental Design and Causal Inference	3
CEP	821	Sampling within Educational Contexts: Multi-level Analyses	3
CEP	823	AI for Data Collection and Analysis in Education	3
CEP	826	Linear Statistical Models	3
CEP	863	Introduction to Path Analytic Models	3
CEP	867	Ethics of AI in Education	3
STT	810	Mathematical Statistics for Data Scientists	3
STT	811	Applied Statistical Modeling for Data Scientists	3
		A relevant course approved by the academic advisor	
3. Complete the following capstone course (3 credits):

CEP	898	Statistics and AI Capstone	3
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4. Completion of a final evaluation.

Effective Fall 2026.

2. Request to establish a **Graduate Certificate in Sport Performance Training** in the Department of Kinesiology. The University Committee on Graduate Studies (UCGS) recommended approval of this request at its September 15, 2025 meeting.

a. **Background Information:**

The Department of Kinesiology has offered a graduate concentration in Strength and Conditioning since 2006 and has developed widespread recognition for preparation of strength and conditioning and sport performance training practitioners. To strategically grow this field of study, the department has shifted this concentration to an online degree program, the Master of Science in Applied Sport Sciences, and proposes this Type 2 graduate certificate program entitled Sport Performance Training (an analogous term) to parallel this offering. Approximately 125 higher education institutions sponsor a graduate education program in Kinesiology or Exercise Science, the parent discipline(s) for strength and conditioning and sport performance training. We receive 15-20 applicants per year and the online strategy will allow us to grow this applicant pool while maintaining program quality. Furthermore, MSU's nationwide brand recognition as a Big Ten Division One NCAA institution gives our program added visibility, which is an important asset in the promotion of online graduate programs.

Accreditation for strength and conditioning degree programs is handled by the Council on Accreditation of Strength and Conditioning Education (CASCE). Although not currently mandated, by 2030, CASCE accreditation will be required for graduates to sit for the Certified Strength and Conditioning Specialist (CSCS) credential examination, which carries widespread industry recognition as an entry-level certification.

b. **Academic Programs Catalog Text:**

The Graduate Certificate in Sport Performance Training provides opportunities for students to develop expertise in the planning, implementation, and evaluation of strength and conditioning and performance training for athletes at the professional, intercollegiate, interscholastic, and community sports levels. The certificate is available only online.

Admission

To be considered for admission to the Graduate Certificate in Sport Performance Training, students must:

1. have completed a bachelor's degree.
2. complete the Intent to Enroll form if you are currently enrolled in a graduate degree program at Michigan State University.

Students who are not enrolled at Michigan State University must:

1. submit a university application and application fee.
2. provide transcripts from all previous institutions of higher education.
3. submit an academic statement of 750 words that clearly describe the applicant's reasons for pursuing the certificate and the goals that the certificate will help them attain.
4. submit a current resume of no more than two pages.
5. submit two letters of recommendation, one from a professional source (colleague, supervisor), and one from an academic source (instructor, advisor).
6. take a test of English language proficiency for students for whom English is not a first language.

Applications are reviewed by faculty who look for indications of high probability of success. Factors that are significant in determining admission are:

1. a grade-point average of 3.0 or higher in the last two years of all undergraduate and graduate course work.
2. professional goals that are consistent with the objectives of the graduate certificate.
3. evidence of an understanding of the roles that sport performance and strength and conditioning practitioners serve within competitive sports.
4. relevant career experiences, including employment, internships, or field experiences.

Requirements for the Graduate Certificate in Sport Performance Training

CREDITS

Students must complete 13 credits from the following courses:

1. All of the following courses (10 credits):

KIN	815	Essentials of Strength and Conditioning	3
KIN	815B	Essentials of Strength and Conditioning II	3
KIN	819	Advanced Sport Nutrition	3
KIN	852	Ethics for the Sport Practitioner	1
2. One additional 3-credit Kinesiology course approved by the student's academic advisor.

Effective Spring 2026.

PART II - NEW COURSES AND CHANGES

ELI BROAD COLLEGE OF BUSINESS

HB 486 Advanced Hospitality Marketing
Fall of every year. 3(3-0) ~~P: HB 375 or MKT 300 or MKT 327~~ P: MKT 300 or MKT 327 R: Open to juniors or seniors in the Hospitality Business Major.
Application of advanced marketing principles in the hospitality industry. Identifying, influencing and servicing demand for hospitality products, services, and experiences.
SA: HB 475, HB 476
Effective Fall Semester 2025

COLLEGE OF EDUCATION

CEP 808 Introduction to Educational Measurement
Fall of every year. Spring of every year. 3(3-0)

NEW Introduction to concepts and methods needed for the development and evaluation of educational tests. Topics include test development, item analysis, classical test theory, reliability, validity, generalizability theory, factor analysis, and item response theory.
Effective Spring Semester 2026

CEP 819 Experimental Design and Causal Inference
Fall of every year. 3(3-0) P: CEP 834 and CEP 835

NEW Design and analysis of educational experiments. Covers randomization, validity threats, ANOVA, regression, multilevel models, and causal inference frameworks. Prepares students to evaluate interventions and policy impacts in educational settings.
Effective Spring Semester 2026

CEP 821 Sampling within Educational Contexts – Multi-level Analyses
Spring of every year. 3(3-0) P: CEP 834 and CEP 835 RB: Introductory statistics, regression analysis

NEW Design and analysis of hierarchical linear models for nested educational data. Topics include variance components, growth modeling, cross-classified designs, and meta-analytic applications to prepare students for advanced research in educational policy and evaluation.
Effective Spring Semester 2026

CEP 823 AI for Data Collection & Analysis in Education
Fall of every year. 3(3-0) P: CEP 834 and CEP 835 RB: This course builds on the concepts covered in the pre-requisite and is for those who are eager to code, manipulate, and perform analyses in Python and R for educational data. There are also some statistical concepts that this course will use and assume familiarity.

NEW AI for Data Collection & Analysis in Education equips educators and researchers with coding skills to apply AI tools to educational data. Building on Introduction to AI, Data Science, and Large-Scale Educational Data, it trains students to implement AI solutions for advanced data analysis in educational research
Effective Spring Semester 2026

CEP 826 Linear Statistical Models
Fall of every year. 3(3-0) P: CEP 834 and CEP 835 RB: Knowledge of basic algebra, an understanding of the fundamental principles of descriptive statistics and hypothesis testing.

NEW Introduction to techniques of data analysis and statistical inference commonly used in educational, sociological, economic, and psychological research: the general linear model (i.e., regression, analysis of variance) and extensions to multivariate outcomes, emphasizing graphical representations to build intuition and interpretation.
Effective Spring Semester 2026

CEP 834	Basic Ideas of Statistical Inference Fall of every year. Spring of every year. 3(3-0) RB: Basic understanding of mathematics and research concepts in education or social sciences.
NEW	Measures and variables in research. Application of descriptive statistical techniques to data. Graphical and tabular representation of data. Concepts of statistical inference in educational contexts. Introduction to data analysis, estimation, and tests of hypotheses. Effective Spring Semester 2026
CEP 835	Introduction to AI, Data Science, and Large-Scale Educational Data Fall of every year. Spring of every year. 3(3-0) RB: The course was designed to be accessible to educators and professionals without a technical background in AI or data science, focusing on practical applications and ethical considerations in educational contexts. It's important to note that no prior experience in AI or data science is required, as the course is designed to build knowledge from the ground up.
NEW	Survey of Artificial Intelligence (AI), data science, and large-scale educational datasets. Foundational concepts, AI applications, and ethical use of educational data, designed to prepare educators to evaluate AI appropriateness in analytical workflows. Effective Spring Semester 2026
CEP 863	Introduction to Path Analytic Methods Spring of every year. 3(3-0) P: CEP 834 and CEP 835 RB: Introductory statistics, regression analysis
NEW	Introduction to path analysis and structural equation modeling for observed variables. Covers model construction, parameter estimation, hypothesis testing, and software applications (e.g., Mplus) with emphasis on educational research. Effective Spring Semester 2026
CEP 867	Ethics of AI in Education Spring of every year. 3(3-0) P: CEP 834 and CEP 835 RB: A basic understanding of educational systems and policies, familiarity with ethical principles, and an interest in the application of AI in education.
NEW	Ethical considerations in the application of artificial intelligence (AI) within educational settings. Topics include data privacy, algorithmic bias, fairness, transparency, accountability, and the impact of AI on student learning and equity. Effective Spring Semester 2026
CEP 898	Statistics and AI Capstone Fall of every year. Spring of every year. 3(3-0) RB: Knowledge of basic algebra, an understanding of the fundamental principles of descriptive statistics and hypothesis testing. R: Approval of department.
NEW	Integration of advanced Artificial Intelligence (AI) and statistical methods to address real-world educational challenges. Design, implement, and present an original research or applied project focused on educational data, such as improving student outcomes, optimizing resource allocation, or evaluating interventions using AI-driven analytics. Effective Spring Semester 2026