Artificial Intelligence and Learning Analytics in Education

College of EDUCATION

This Artificial Intelligence and Learning Analytics in Education certificate program is a 12-credit hour fully online asynchronous post-baccalaureate certificate. Artificial intelligence (AI) is reshaping PK–12 education by influencing how students learn, how teachers instruct, and how schools use data to guide decisions. However, these tools can also raise concerns about privacy, bias, transparency, and ethics. Additionally, many educators lack preparation to interpret and apply AI technology and data effectively. Building educator capacity in these areas is essential for responsible and effective implementation. AI and learning analytics (LA) can personalize instruction, identify learning gaps, support targeted interventions, and automate routine tasks. The certificate program will focus on the responsible integration of AI and LA in educational settings. The certificate features a cohort-based model that provides a foundation in AI ethics and applications in learning environments, along with foundational and advanced competencies in learning analytics.

EDF 8050 | Foundations of Artificial Intelligence in Learning Environments
3 credit hours

Focuses on foundational concepts of Artificial Intelligence (AI) in learning environments from historical and modern perspectives. Key topics include how AI works, applications in education and everyday life, AI theoretical and literacy frameworks, and opportunities and ethics related to prompt engineering, generative AI, and large language models.

EDF 8060 | Introduction to Learning Analytics
3 credit hours

Fundamental techniques for transforming educational data into actionable insights about learning processes. Key topics include the foundations of learning analytics, basics of statistical programming, processes in data preparation, application of basic statistics to educational data, creation of effective visualizations of educational data, and use of machine learning methods such as predictive modeling of student outcomes and cluster analysis of educational data.

EDF 8150 | Artificial Intelligence and Ethics in Learning Environments
3 credit hours

Examines the growing role of artificial intelligence across learning environments and prepares educators and learning scientists to critically evaluate its ethical dimensions. Participants will explore issues of equity, privacy, and learner agency to make informed, human-centered decisions. The course empowers graduates to design inclusive and transparent AI-integrated educational experiences aligned with core pedagogical values.

EDF 8160 | Advanced Learning Analytics
3 credit hours

Advanced learning analytics methods for uncovering deep insights into learning processes and building state-of-the-art educational tools, such as modeling longitudinal processes in education, network analysis of complex social and knowledge structures in educational settings, predictive and evaluative uses of artificial intelligence in education, and the use of large language models to develop explainable feedback systems in education. **Prerequisites: EDF 8060**

Admission Requirements

- Must have a bachelor's degree in Education (or a closely related field)
- Complete the Graduate School Application
- Current resume/CV

Spring entrance term
The deadline to apply is December 1.

For more information, email coegrad@clemson.edu or visit clemson.edu/education/academics.

MORE INFORMATION
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