

# MODELING AND SIMULATION CERTIFICATE, GRADUATE

Certificates are intended primarily for working professionals, and provide a "bite-sized" chunk of graduate coursework. See Professional Master of Computer Science (MCS) (<http://catalog.ewu.edu/archives/2021-2022/stem/cs-ee/computer-science-mcs/>) for additional information.

## Required Certificate Prerequisites—must be completed prior to admission.

CSCD 210	PROGRAMMING PRINCIPLES I
CSCD 211	PROGRAMMING PRINCIPLES II
CSCD 300	DATA STRUCTURES

## Certificate Requirements

CSCD 506	RESEARCH METHODS IN COMPUTER SCIENCE	4
CSCD 580	INTELLIGENT SYSTEMS	4
CSCD 583	MODELING AND SIMULATION	4
CSCD 601	RESEARCH REPORT	4

Total Credits		16
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## Students who successfully earn a Modeling and Simulation, Graduate Certificate from EWU should be able to understand a breadth and depth of topics, tools, and techniques in computational modeling, simulation, visualization, and analysis (MSVA):

- develop and investigate what if decision-making processes;
- employ scientific and engineering thinking and doing for disciplined problem solving;
- evaluate and report on proposed or actual decisions;
- experience a broad spectrum of real-world applications and examples;
- interconnect and holistically interrelate other computer science and engineering topics;
- select, justify, and apply appropriate modeling and simulation techniques;
- understand and connect the real world to the virtual world and vice versa.

Understand the foundation of artificial intelligence (AI) and intelligent systems (IS):

- Apply AI/IS programming techniques and software architectures;
- consider AI/IS roles in smart and mobile devices;
- devise and carry out a practical project for an AI/IS/MSVA topic of your choice;
- examine search strategies;
- investigate knowledge representation;
- model reasoning processes;
- understand AI/IS crossovers to other CS domains.