Operations Analytics (OPAN)

Courses

OPAN 50003. Introduction to Operations Analytics. 3 Hours.
An introduction to operations analytics providing an understanding of the role of analytics within operational settings. Builds basic skill instruction in descriptive analytics and the communication of analytics. An overview of introductory techniques within the field of analytics and their application. (Typically offered: Fall, Spring and Summer)

OPAN 50103. Applied Predictive Analytics. 3 Hours.
This course focuses on the fundamental theory, methodologies, algorithms and software tools for predictive analytics. The main goal is to equip the students with the basic knowledge and skills to solve common predictive analytics problems arising from various applications. Methodologies covered in this course include linear and non-linear regression, additive models, ensemble trees, model assessment and selection, Artificial Neural Network. Students will learn how to implement the methods using popular statistical computing and analytics tools. Working knowledge of multi-variate calculus based probability and statistical inference is expected. Prerequisite: OPAN 50003. (Typically offered: Fall, Spring and Summer)

OPAN 50203. Applied Prescriptive Analytics. 3 Hours.
Methods, algorithms, and techniques for optimization models used in analytics applications. Coverage includes model formulation, solution methods and the use of optimization software. Prerequisite: OPAN 50003. (Typically offered: Fall, Spring and Summer)

OPAN 57103. Simulation Analytics. 3 Hours.
An overview of Monte Carlo computer simulation methods and their application within analytics. Generation of random variates from univariate and multi-variate distributions. Probability model representation and fitting methods. Computing methods for simulating and estimating random processes. Bootstrapping procedures. Statistical reasoning and decision making under uncertainty. Working knowledge of calculus-based probability and statistics and computer programming is expected. (Typically offered: Fall and Summer)

OPAN 59003. Operations Analytics Capstone. 3 Hours.
Comprehensive analytics project. Conduct background research, data collection, and preliminary analysis; define objectives, performance measures, and deliverables; apply analytics methods, develop recommended solutions, and document solution and benefits. Course should be taken in the term prior to meeting degree requirements. Students cannot receive credit for both OPAN 59003 and OPAN 59103. Prerequisite: Instructor consent. (Typically offered: Fall, Spring and Summer)

OPAN 59103. Operations Analytics Industrial Practicum. 3 Hours.
Student must apply to enroll in this course. Students must be employed within an analytics organization in industry. Prior approval to use an organization's analytics project as the basis of the student's course project must be obtained. A project report documenting the application of analytics performed by the student within the organization is required. An evaluation by the student's supervisor on the technical aspects of the student's work will be required in addition to an evaluation by the course instructor. The student's supervisor must be an analytics professional. Course should be taken in the term prior to meeting degree requirements. Students cannot receive credit for both OPAN 59003 and OPAN 59103. Prerequisite: Instructor consent. (Typically offered: Fall, Spring and Summer)