UNIVERSITY OF THE FRASER VALLEY

OFFICIAL UNDERGRADUATE COURSE OUTLINE (page 1)

COURSE IMPLEMENTATION DATE: January 1998
COURSE REVISED IMPLEMENTATION DATE: September 2010
COURSE TO BE REVIEWED: January 2014
(four years after UPAC approval) *(month, year)*

OFFICIAL UNDERGRADUATE COURSE OUTLINE INFORMATION

Students are advised to keep course outlines in personal files for future use.
Shaded headings are subject to change at the discretion of the department – see course syllabus available from instructor

COMP 315	**Computer Information Systems**	**3**
COURSE NAME/NUMBER	FACULTY/DEPARTMENT	UFV CREDITS

Computer Simulation and Modeling
COURSE DESCRIPTIVE TITLE

CALENDAR DESCRIPTION:
This course will provide students with additional experience in problem solving within a computer environment. Problems will be drawn from the application of quantitative analysis to decision making, including linear programming, and network, inventory, queuing, and simulation models. Emphasis will be placed on the formulation and analysis of various models using the computer to implement solutions.

PREREQUISITES: MATH 111, MATH 113, MATH 115 **or** MATH 125. Acceptance to CIS degree program.

As of September 2011, prerequisites will change to the following:
45 university-level credits, one COMP course numbered above 100, and one of the following: MATH 106 with C+ or better; MATH 104 with B+ or better; MATH 270; or BUS 301.

COREQUISITES:
PRE or COREQUISITES:

SYNONYMOUS COURSE(S):
(a) Replaces:
(b) Cross-listed with:
(c) Cannot take: for further credit.

SERVICE COURSE TO: *(department/program)*

TOTAL HOURS PER TERM: 45

STRUCTURE OF HOURS:

Lectures:	**45**	Hrs
Seminar:		Hrs
Laboratory:		Hrs
Field experience:		Hrs
Student directed learning:		Hrs
Other (specify):		Hrs

TRAINING DAY-BASED INSTRUCTION:
Length of course:
Hours per day:

OTHER:
Maximum enrolment: **35**
Expected frequency of course offerings: Once per year
(every semester, annually, every other year, etc.)

WILL TRANSFER CREDIT BE REQUESTED? (lower-level courses only)	☐ Yes	☐ No
WILL TRANSFER CREDIT BE REQUESTED? (upper-level requested by department)	☐ Yes	☒ No
TRANSFER CREDIT EXISTS IN BCCAT TRANSFER GUIDE:	☐ Yes	☒ No

Course designer(s): **Edward Lo**

Department Head:	**Ora Steyn**	Date approved:	**March 27, 2009**
Supporting area consultation (Pre-UPAC)		Date of meeting:	**November 6, 2009**
Curriculum Committee chair:	**Edward Lo**	Date approved:	**March 26, 2009**
Dean/Associate VP:	**Dan Ryan**	Date approved:	**January 18, 2010**
Undergraduate Program Advisory Committee (UPAC) approval		Date of meeting:	**January 29, 2010**

LEARNING OUTCOMES:

Upon successful completion of this course, students will be able to:

- Describe different types of simulation
- Explain the common pieces of a simulation model
- Formulate a simulation model
- Model operations and inputs
- Perform statistical analysis of output
- Apply basic queuing theory to a single server system
- Conduct simulation studies

METHODS: *(Guest lecturers, presentations, online instruction, field trips, etc.)*

Lectures and presentation

METHODS OF OBTAINING PRIOR LEARNING ASSESSMENT RECOGNITION (PLAR):

☒ Examination(s) ☒ Portfolio assessment ☒ Interview(s)

☐ PLAR cannot be awarded for this course for the following reason(s):

TEXTBOOKS, REFERENCES, MATERIALS:

[Textbook selection varies by instructor. An example of texts for this course might be:]

- *Simulation with Arena*, by W. D. Kelton, R.P. Sadowski and D.T. Sturrock, 4th Edition, McGraw Hill.
- *Simulation, Modeling and Analysis*, by Averill M. Law and W. David Kelton, 3rd Edition, McGraw Hill.

SUPPLIES / MATERIALS:

STUDENT EVALUATION:

[An example of student evaluation for this course might be:]

Component Percentage

- Participation 10%
- Assignments 15%
- Term Project and presentation 20%
- Midterm Exam 15%
- Final Exam 40%

COURSE CONTENT:

[Course content varies by instructor. An example of course content might be:]

• What is a simulation?
• Different kinds and types of Computer simulations
• Components of a simulation model
• Randomness in simulation
• Analysis options for simulations
• Basic queuing theory
• Introduction to the simulation software Arena
• How to model operations, inputs and collect results
• Statistical analysis of simulation output
• General steps in conducting a simulation study