SIMULATING AND MODELING TO UNDERSTAND CHANGE

Grado en Computación e Inteligencia Artificial / Bachelor in Computer Science and Artificial Intelligence BCSAI SEP-2025 SMUC-N-CSAI.1.M.A

Area Mathematics

Number of sessions: 30

Academic year: 25-26

Degree course: FIRST

Number of credits: 6.0

Semester: 2º

Category: BASIC

Language: English

Professor: **KYLE VINCENT ROSARIO TAGLE**

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Kyle Vincent Rosario holds a Master's Degree in Business Analytics and Big Data from IE Business School (Madrid, Spain) and a Bachelor of Science in Industrial Engineering from the University of the Philippines Diliman. He is currently the Senior Associate Director of Business Analytics and Insights at IE Business School, where he reports directly to the Dean and leads data-driven initiatives to support academic strategy, operational efficiency, and institutional innovation. His professional interests center on advanced analytics, machine learning, AI integration in decision-making, and the use of data to drive strategic transformation in education, energy, and industrial sectors.

Prior to his current role, he served as Technical Advisor to the Chairman at Alsons Power Group, where he conducted strategic analysis of coal, diesel, and hydro-electric power plant operations. He also held multiple roles at Cemex Holdings Philippines, including Senior Strategic Planning Officer and Executive Assistant to the Regional President for Asia, Middle East, and Africa, providing high-level financial and operational insights and coordinating international planning efforts. Across these roles, he developed deep expertise in SQL, Python, Power BI, R, and Dataiku, along with experience in consensus clustering, sentiment analysis, and principal component analysis.

Outside the professional setting he enjoys commenting on how hot it is in Madrid during the summer, how cold it is during the winter, and how quickly money seems to leave his bank account.

Office Hours

Office hours will be on request. Please contact at:

krosario@faculty.ie.edu

SUBJECT DESCRIPTION

Simulation and modeling is an emerging area of scientific investigation. Putting it simple, simulation and modeling is a substitute for physical experimentation in which computers are used to explore some physical phenomena. It can then facilitate the understanding of a particular system without testing the system in the real world. It also has some advantages over physical experimentation. For example, simulations can be more realistic than traditional experiments and can be conducted faster. Simulation is used in many areas of natural and social sciences, such as mathematics, physics, engineering, psychology, and biology. In each of these areas we can define systems with really complex activities that emerge from smaller individual elements. We use simulation and modeling to understand those systems and predict their behavior.

This course covers Monte Carlo Simulation, Discrete Events Simulation, Model Building and Regression and Classification Models, and will discuss how simulation and modeling can be used to solve real-life problems. Students will learn and practice statistics and programming. At the end of the course, the students will know how to conduct a simulation study and to model some real-life scenarios.

PREREQUISITES

Basic knowledge of Mathematics. It is highly recommended to have passed the Fundamentals of probability & statistics and Data insights and visualization courses from the previous semester. Beginner to moderate levels of Python programming.

LEARNING OBJECTIVES

The main topics covered in this course are the following:

- Random Number generation
- Random Variables generation
- Monte Carlo Simulation
- Discrete Events Simulation
- Regression models
- Classification models

CORE TOPICS

The 8 Core Topics or Modules of the course will be:

- Module 1: Introduction to SMUC
- Module 2: Random Numbers and Random Variables Generation
- Module 3: Monte Carlo Simulation
- Module 4: Discrete Events Simulation
- Module 5: Model Building
- Module 6: Regression models
- Module 7: Classification models

TEACHING METHODOLOGY

IE University teaching method is defined by its collaborative, active, and applied nature. Students actively participate in the whole process to build their knowledge and sharpen their skills. Professor's main role is to lead and guide students to achieve the learning objectives of the course. This is done by engaging in a diverse range of teaching techniques and different types of learning activities such as the following:

Learning Activity	Weighting	Estimated time a student should dedicate to prepare for and participate in
Lectures	20.0 %	30.0 hours
Discussions	20.0 %	30.0 hours
Exercises in class, Asynchronous sessions, Field Work	13.3 %	20.0 hours
Group work	26.7 %	40.0 hours
Individual studying	20.0 %	30.0 hours
TOTAL	100.0 %	150.0 hours

AI POLICY

Generative artificial intelligence (GenAI) tools may be used in this course for assistance. If a student is found to have used AI-generated content inappropriately, it will be considered academic misconduct, and the student might fail the respective assignment or the course.

If you are in doubt as to whether you are using GenAI tools appropriately in this course, I encourage you to discuss your situation with me.

Below, a suggested format to acknowledge the use of generative AI tools. Please note that acknowledging AI will not impact your grade.

- I acknowledge the use of [AI systems link] to [specify how you used generative AI]. The prompts used include [list of prompts]. The output of these prompts was used to [explain how you used the outputs in your work]
- If AI was permitted to use in your assignment, but you have chosen not to include any AI generated content, the following disclosure is recommended:
- No content generated by AI technologies has been used in this assignment.

PROGRAM

MODULE I: INTRODUCTION TO SIMULATING AND MODELING TO UNDERSTAND CHANGE

SESSION 1 (LIVE IN-PERSON)

Course Presentation

In this session, we will start getting to know each other. Then I will present the most important aspects of the course and the syllabus and we will define the groups you will form for the rest of the course.

Learning Blocks:

- 1st slot: 30 min. Knowing each other.
- 2nd slot: 50 min. Course specifications

SESSION 2 (LIVE IN-PERSON)

Introduction to Simulation and Modeling

In this session, we will start with some introductory theoretical aspects about simulation and modeling, we will define what a system is and we will see some practical examples.

Learning Blocks:

- 1st slot: 20 min. Systems, Models and Simulation. Understanding some terminology.
- 2nd slot: 40 min. Why do we use Simulation? The different types of Simulation. The different stages in a Simulation. Methodology
- 3rd slot: 40 min. What is a model? Predictive statistics. The different types of models. Methodolog

MODULE II: RANDOM NUMBERS AND RANDOM VARIABLES GENERATION

SESSION 3 (LIVE IN-PERSON)

Generating Random Numbers

When we want to simulate any stochastic behavior using computer simulation is essential to develop methods to generate random numbers. In this session we will learn the properties of random numbers and how to generate them.

Learning Blocks:

- 1st slot: 20 min. Random Numbers properties
- 2nd slot: 30 min. Random Numbers generation
- 3rd slot: 30 min. In-class exercises. The Linear Congruential Method.

SESSION 4 (LIVE IN-PERSON)

Tests of Randomness

In further sessions, when creating simulation programs, we will assume that Python is generating random numbers correctly. In this session we will learn about tests of randomness and we will pass those tests to the Python functions for creating random numbers.

Learning Blocks:

- 1st slot: 20 min. Testing Uniformity
- 2nd slot: 30 min. Testing Independence
- 3rd slot: 30 min. In-class exercises.

SESSION 5 (LIVE IN-PERSON)

Simulating Discrete and Continuous Random Variables

Sometimes, when creating simulation programs, we want to simulate non-random behaviors in our variables. There are several random variables following different distributions that allow us to simulate many different kinds of scenarios. In this session we will see how to simulate discrete and continuous random variables using Python.

Learning Blocks:

- 1st slot: 30 min. Simulating Discrete RVs.
- 2nd slot: 30 min. Simulating Continuous RVs.

- 3rd slot: 20 min. In-class exercises.

MODULE III: MONTE CARLO SIMULATION

SESSION 6 (LIVE IN-PERSON)

Monte Carlo Simulation I

Monte Carlo Method is probably the most famous tool for simulation. In this session we will learn about Monte Carlo history, we will understand the difference between Monte Carlo methods and Monte Carlo simulation, we will integrate the different steps in a Monte Carlo simulation and finally we will carry on a Monte Carlo simulation experiment to estimate the Pi number.

Learning Blocks:

- 1st slot: 10 min. Monte Carlo History.
- 2nd slot: 10 min. Monte Carlo Methods vs. Monte Carlo Simulation.
- 3rd slot: 15 min. Steps in a Monte Carlo Simulation.
- 4th slot: 45 min. Use case. Pi number experiment.

SESSION 7 (LIVE IN-PERSON)

Monte Carlo Simulation II

Monte Carlo Simulation is a very useful tool when we want to make inferences about real world scenarios. In this session we will learn one of the most useful uses of Monte Carlo Simulation, that is Monte Carlo for Inference.

Learning Blocks:

- 1st slot: 20 min. What is Inferential statistics?
- 2nd slot: 20 min. How can we use Monte Carlo Simulation for Inference?
- 3rd slot: 20 min. Use case: The taxi problem experiment.
- 4th slot: 20 min. Use case: The sampling problem experiment.

SESSION 8 (LIVE IN-PERSON)

Monte Carlo Simulation Lab

In this session, students will work in groups to complete a guided lab about Monte Carlo Simulation.

Learning Blocks:

- 1st slot: 10 min. Lab explanation and delivery instructions.
- 2nd slot: 70 min. Guided lab completion.

MODULE IV: DISCRETE EVENTS SIMULATION

SESSION 9 (LIVE IN-PERSON)

Discrete Events Simulation I

Unlike Monte Carlo methods, which allow us to simulate events based on variables that change constantly over time, the Discrete Events Simulation (DES) will help us to model the behavior of systems based on a sequence of discrete events over time. In this session we will learn the very basics about DES and how to implement DES in Python using SimPy.

Learning Blocks:

- 1st slot: 30 min. Intro to DES. Terminology and framework.
- 2nd slot: 50 min. The SimPy package.

SESSION 10 (LIVE IN-PERSON)

Discrete Events Simulation II

In this session we will learn how to extract information from a DES using SimPy.

Learning Blocks:

- 1st slot: 40 min. Simulating a hospital queue in Python
- 2nd slot: 40 min. Interpreting SimPy results

SESSION 11 (LIVE IN-PERSON)

Discrete Events Simulation lab

In this session, students will work in groups to complete a guided lab about Discrete Events Simulation.

Learning Blocks:

- 1st slot: 10 min. Lab explanation and delivery instructions.
- 2nd slot: 70 min. Guided lab completion.

MODULE V: MODEL BUILDING

SESSION 12 (LIVE IN-PERSON)

Model Building I

When we want to analyze or even predict what is happening around us, we make use of mathematical models. It is also necessary that we know the basic elements that make up a model to perform any type of simulation. In this session we will learn how to read and design models.

Learning Blocks:

- 1st slot: 10 min. Functions vs. Models.
- 2nd slot: 30 min. Reading Models.
- 3rd slot: 40 min. Model Design.

SESSION 13 (LIVE IN-PERSON)

Model Building II

In this session, we will learn how to find patterns in our variables and between our variables. We will also learn about Cross Validation techniques and why they are so important in stochastic models.

Learning Blocks:

- 1st slot: 20 min. Variation analysis

- 2nd slot: 20 min. Covariation analysis.
- 3rd slot: 40 min. Cross Validation.

SESSION 14 (LIVE IN-PERSON)

MIDTERM EXAM

MODULE VI: REGRESSION MODELS

SESSION 15 (LIVE IN-PERSON)

Simple Linear Regression I

When we try to predict the behavior of a variable in a stochastic model, depending on its nature, we will say that we face a regression or classification problem. In this session we will define what a regression problem is and explain the most basic aspects of Simple Linear Regression (LR), the most popular technique to solve this kind of problem.

Learning Blocks:

- 1st slot: 20 min. Simple LR introduction.
- 2nd slot: 20 min. Theoretical demonstration of a Simple LR.

SESSION 16 (LIVE IN-PERSON)

Simple Linear Regression II

In this session we will learn about the most important statistics to interpret the results of a Simple LR.

Learning Blocks:

- 1st slot: 20 min. Simple LR with simulated data.
- 2nd slot: 20 min. Theoretical interpretation of the most important statistics in a Simple LR.
- 3rd slot: 20 min. Interpretation of the most important statistics in a Simple LR.
- 4th slot: 20 min. Simple LR implementation in R.

SESSION 17 (LIVE IN-PERSON)

Multiple Linear Regression

In this session we will learn how to include more than one variable in a linear regression model.

Learning Blocks:

- 1st slot: 40 min. Multiple Linear Regression implementation in Python
- 2nd slot: 40 min. Interpreting the results of a MLR in Python. The multicollinearity problem.

SESSION 18 (LIVE IN-PERSON)

Residuals and Assumptions

Analyzing the residuals of a LR is essential to determine the quality of our model. We will learn how to interpret the residuals of a LR model and how to check all the assumptions we must fulfill to generalize our results.

Learning Blocks:

- 1st slot: 40 min. The error component. How can we interpret the residuals of a LR?
- 2nd slot: 40 min. Assumptions we need to check to generalize our results.

SESSION 19 (LIVE IN-PERSON)

Categorical variables and Interaction effects.

LR models can hold many different kinds of parameters. So far we have learned how to include main effects through continuous variables in our models, but we have other possible explanatory variables or interaction between variables that can affect the predictions of our models. In this session we will learn how to include and interpret categorical variables and interaction effects in our LR models.

Learning Blocks:

- 1st slot: 40 min. Categorical variables in a LR model. Dummy variables vs. Factors. Interpreting the results.
- 2nd slot: 40 min. Interaction effect in a LR model. How to interpret different interaction effects.

SESSION 20 (LIVE IN-PERSON)

Polynomial Regression

Main effects in a LR allows us to adjust the slope and the intercept of our explanatory model, but we are limited by these two different components. There are some situations in which we can explain the behavior of our dependent variable using second, third, … order effects. In this session we will learn how to define polynomial effects of order two or more to improve the predictions of our models.

Learning Blocks:

- 1st slot: 20 min. Identifying potential polynomial effects in our models using the residuals.
- 2nd slot: 30 min. Implementing polynomial regression models in Python
- 3rd slot: 30 min. Interpreting the results of a polynomial regression.

SESSION 21 (LIVE IN-PERSON)

Variable Selection and Cross Validation

When we want to create a model, we need to navigate between the two dangerous realities, the overfitting and the underfitting. In this session we will learn different techniques to select the optimal variables to obtain the best possible fit in our models, and we will learn how to apply Cross Validation techniques to avoid overfitting.

Learning Blocks:

- 1st slot: 40 min. Variable Selection: ANOVA, Best Subset Regression, Stepwise Selection.
- 2nd slot: 40 min. Cross Validation in a LR model.

SESSION 22 (LIVE IN-PERSON)

Linear Regression Lab

In this session, students will work in groups to complete a guided lab about Linear Regression.

Learning Blocks:

- 1st slot: 10 min. Lab explanation and delivery instructions.
- 2nd slot: 70 min. Guided lab completion.

SESSION 23 (LIVE IN-PERSON)

Linear Regression Lab (continuation)

In this session, students will continue working in groups to complete a guided lab about Linear Regression.

Learning Blocks:

- 1st slot: 80 min. Guided lab completion.

MODULE VII: CLASSIFICATION MODELS

SESSION 24 (LIVE IN-PERSON)

From Linear Regression to Logistic Regression I

As we have stated before, when we are modeling reality we can face two kinds of problems: regression and classification. When the variable we want to predict has discrete nominal values, the Linear Regression logic does not apply and we need to find a way to classify between categories instead of predicting a tendency. The most basic classification technique is called Logistic Regression, and it comes from a transformation of the already learned method of Linear Regression. In this session we will understand the mathematics behind the Logistic Regression Model.

Learning Blocks:

- 1st slot: 20 min. Linear Regression vs. Logistic Regression.
- 2nd slot: 30 min. Mathematics behind Logistic Regression.

SESSION 25 (LIVE IN-PERSON)

From Linear Regression to Logistic Regression II

Learning Blocks:

- 1st slot: 40 min. From Linear Regression to Logistic Regression, the Logit transformation.
- 2nd slot: 40 min. Interpretation of the most important statistics in Logistic Regression.

SESSION 26 (LIVE IN-PERSON)

Logistic Regression implementation in Python

In this session we will learn how to implement a Logistic Regression model in Python and how to interpret the results.

Learning Blocks:

- 1st slot: 40 min. Logistic Regression implementation in Python.
- 2nd slot: 40 min. Logistic Regression results interpretation.

SESSION 27 (LIVE IN-PERSON)

Logistic Regression validation

Given that the nature of the dependent variable in a classification problem is different, we will also need different tools to validate and generalize our models. In this session we will learn about the different statistics that we can use to validate our classification models.

Learning Blocks:

- 1st slot: 40 min. Confusion Matrix and Cutoff point
- 2nd slot: 40 min. ROC curves.

SESSION 28 (LIVE IN-PERSON)

Logistic Regression Lab

In this session, students will work in groups to complete a guided lab about Logistic Regression.

Learning Blocks:

- 1st slot: 10 min. Lab explanation and delivery instructions.
- 2nd slot: 70 min. Guided lab completion.

SESSION 29 (LIVE IN-PERSON)

Logistic Regression Lab (continuation)

In this session, students will continue working in groups to complete a guided lab about Logistic Regression.

Learning Blocks:

- 1st slot: 80 min. Guided lab completion.

SESSION 30 (LIVE IN-PERSON)

FINAL EXAM

EVALUATION CRITERIA

Participation (10%)

Active participation in-class activities, discussions, and labs is an especially important aspect in this course because our focus will be on understanding how the concepts discussed in class can be applied in real-world contexts.

Group Work (Labs) (25%)

A total of 4 labs will be conducted throughout the course. These labs are a tool to help the student apply the concepts acquired during each session. During the labs, students will work in groups. These groups will be formed in the first synchronous class if possible. The labs will be delivered before the next synchronous class via Turnitin.

Quizzes (15%)

Students will have to complete a quiz or more after each of the 7 modules that make up the course.

Midterm exam (20%)

Students will take a test in which they will be asked about all the course content. Throughout the course, the professor will provide detailed information about the exam format well in advance, ensuring that students have ample time to prepare properly.

Final exam (30%)

Students will take a test in which they will be asked about all the course content. Throughout the course, the professor will provide detailed information about the exam format well in advance, ensuring that students have ample time to prepare properly.

Late Assignments/Presentation:

Late assignments will not be counted as submitted. Assignments submitted after the due date will result in a grade of zero. Only in cases of emergency or illness can changes be made to due dates of assignments or projects. ALL such arrangements are the full responsibility of the student and must be made PRIOR to the due date. In this casse, failure to confirm any changes to the due date with the professor prior to the due date will result in a grade of zero.

Your final grade in the course will be based on your participation, the completion of the course labs, the different module quizzes and two exams (Midterm and Final). The weight of each one will be as follows:

criteria	percentage	Learning Objectives	Comments
Class Participation	10 %		
Labs	25 %		
Quizzes	15 %		
Midterm Exam	20 %		
Final Exam	30 %		

RE-SIT / RE-TAKE POLICY

Each student has four chances to pass any given course distributed over two consecutive academic years: ordinary call exams and extraordinary call exams (re-sits) in June/July.

Students who do not comply with the 80% attendance rule during the semester will fail both calls for this Academic Year (ordinary and extraordinary) and have to re-take the course (i.e., re-enroll) in the next Academic Year.

Evaluation criteria:

- Students failing the course in the ordinary call (during the semester) will have to re-sit the exam in June / July (except those not complying with the attendance rule, who will not have that opportunity and must directly re-enroll in the course on the next Academic Year).
- The extraordinary call exams in June / July (re-sits) require your physical presence at the campus you are enrolled in (Segovia or Madrid). There is no possibility to change the date, location or format of any exam, under any circumstances. Dates and location of the June / July re-sit exams will be posted in advance. Please take this into consideration when planning your summer.
- The June / July re-sit exam will consist of a comprehensive exam. Your final grade for the course will depend on the performance in this exam only; continuous evaluation over the semester will not be taken into consideration. Students will have to achieve the minimum passing grade of 5 and can obtain a maximum grade of 8.0 (out of 10.0) – i.e., “notable” in the in the re-sit exam.
- Retakers: Students who failed the subject on a previous Academic Year and are now re-enrolled as re-takers in a course will be needed to check the syllabus of the assigned professor, as well as contact the professor individually, regarding the specific evaluation criteria for them as retakers in the course during that semester (ordinary call of that Academic Year). The maximum grade that may be obtained in the retake exam (3rd call) is 10.0. After ordinary and extraordinary call exams are graded by the professor, you will have a possibility to attend a review session for that exam and course grade. Please be available to attend the session in order to clarify any concerns you might have regarding your exam. Your professor will inform you about the time and place of the review session. Any grade appeals require that the student attended the review session prior to appealing. Students failing more than 18 ECTS credits in

the academic year after the June-July re-sits will be asked to leave the Program. Please, make sure to prepare yourself well for the exams in order to pass your failed subjects. In case you decide to skip the opportunity to re-sit for an exam during the June / July extraordinary call, you will need to enroll in that course again for the next Academic Year as a re-taker and pay the corresponding extra cost. As you know, students have a total of four allowed calls to pass a given subject or course, in order to remain in the program.

BIBLIOGRAPHY

Recommended

- Robert, C. P., Casella, G., & Casella, G. (2010). *Introducing monte carlo methods with r.* New York: Springer. ISBN 9781441915757 (Printed)

BEHAVIOR RULES

Please, check the University's Code of Conduct here. The Program Director may provide further indications.

ATTENDANCE POLICY

Please, check the University's Attendance Policy here. The Program Director may provide further indications.

For In-Person programs, students should attend their live in-person sessions on campus.

Attendance at all scheduled classes is mandatory and essential for success in the course. In order to pass the course the student must attend, at least, 80% of the sessions. Students attending less than 80% of sessions will be graded with a FAIL for the course. This fail will apply to the ordinary and extraordinary calls of the current academic year.

If you miss class for any reason, you are responsible for getting notes from classmates. If you have questions about any assignment please send me an email. Students who miss a class in which a presentation, mid-term, or final exam is held will not be granted an exception or given an opportunity to do a make-up assignment or exam. However, if illness or other circumstances prevent you from adhering to the assignment/presentation due dates stated in this syllabus, contact your academic director to ask for an exception.

Students with Special Needs:

To request academic accommodations due to a disability, please contact Federico Castanedo via email at: federico.castanedo@ie.edu

ETHICAL POLICY

Please, check the University's Ethics Code here. The Program Director may provide further indications.

Student Privacy Statement:

At times, students may disclose personal information through class discussions. It is expected that all members of the class will respect the privacy of their classmates. This means that the information disclosed in the class will not be repeated or discussed with other students outside of the course.

Decisions about Grades:

Decisions about grades are made very carefully, and are final at the end of the course. If you have questions regarding a certain grade or you would like to receive personal feedback, you must request a meeting with me to discuss grades on specific assignments before the last class of the course. Any disputes regarding grades must be resolved before the final exam. “Extra credit” or makeup assignments will only be allowed under extenuating circumstances at the sole discretion of the course professor.

ACADEMIC INTEGRITY

Unless you are specifically instructed to work with other students in a group, all of your assignments, papers, projects, presentations, and any work I assign must reflect your own work and thinking.

What is academic integrity? When you do the right thing even though no one is watching. The core values of integrity, both academic and otherwise include: honesty, fairness, respect, responsibility, and trust. Academic Integrity requires that all students within Instituto de Empresa (IE) act in accordance with these values in the conduct of their academic work, and that they follow the rules and regulations concerning the accepted conduct, practices and procedures of academic research and writing. Academic Integrity violations are defined as Cheating, Plagiarism or other violations of academic ethics.

Cheating and plagiarism are very serious offenses governed by the IE student code of conduct. Any student found cheating or plagiarizing on any assignment or component of this course will at a minimum receive a “0” on the affected assignment. Moreover, the student will also be referred to the University Judicial System for further action. Additional penalties could include a note on your transcript, failing the class, or expulsion from the university.

It is important to note that, while the list below is comprehensive, it should not be considered exhaustive.

Cheating includes:

1. An act or attempt to give, receive, share, or utilize unauthorized information or unauthorized assistance at any time for assignments, papers, projects, presentations, tests or examinations.
2. Students are permitted to mentor and/or assist other students with assignments by providing insight and/or advice. However, students must not allow other students to copy their work, nor will students be permitted to copy the work of other students. Students must acknowledge when they have received assistance from others.
3. Failure to follow rules on assignments, papers, projects, presentations, tests or examinations as provided by the course professor and/or as stipulated by IE.
4. Unauthorized co-operation or collaboration.
5. Tampering with official documents, including electronic records.
6. The impersonation of a student on presentations, exercises, tests or an examination. This includes logging onto any electronic course management tool or program (e.g. Black Board, etc.) using someone else’s login and password.

Plagiarism includes:

1. Using the work of others and attempting to present it as your own. For example, using phrases or passages from books, articles, newspapers, or the internet and not referencing

them properly in your document. This includes using information from others without citing it, misrepresentation of cited work, and misuse of quotation marks.

2. Submitting an assignment or paper that is highly similar to what someone else has written (i.e., minimal changes in wording, or where the sentences are similar, but in a different order).
3. You don't have to commit "word for word" copying to plagiarize – you can also plagiarize if you turn in something that is "thought for thought" the same as someone else.

Other violations of academic ethics include:

1. Not acknowledging that your work or any part thereof has been submitted for credit elsewhere.
2. Misleading or false statements regarding work completed.
3. Knowingly aiding or abetting anyone in committing any form of an Academic Integrity violation.