CEGEP JOHN ABBOTT COLLEGE DEPARTMENT OF MATHEMATICS

COMPUTER SCIENCE TECHNOLOGY

MATHEMATICS II

Discipline: **Mathematics** **Semester:** **Winter 2017**
Course Number: **201-813-AB**
Ponderation: **2-1-2** **Number of credits:** **1.66**
Competencies: **Solve enumeration, probability, and statistical problems (016P. 5 , 016P. 6)**
Prerequisites: **None.** **This course is not a prerequisite.**

Your teacher will give you all relevant missing information, including class mark breakdown, in a separate handout.

INTRODUCTION

This course is designed for students of Computer Science Technology, covering probability and statistics. Students will learn how to use statistics software. Topics include permutations and combinations, binomial, normal and Poisson distributions, appropriate statistical measures, interval estimation, and presentation of data (tables and graphs).

COURSE OBJECTIVES: Competency 016P. Solve computer-related mathematical and statistical problems.

Elements of the competency	**Performance Criteria**
016P. 5 Solve enumeration problems	5.1 Accurate calculation of the number of permutations in a given context. 5.2 Accurate calculation of the number of arrangements in a given context. 5.3 Accurate calculation of the number of combinations in a given context.
016P. 6 Solve probability and statistical problems	6.1 Calculation of event probabilities associated with binomial, normal, and Poisson distributions. 6.2 Definition of the proper variables for a given situation. 6.3 Choice of appropriate units of measure for a given situation. 6.4 Choice of appropriate statistical measurements for a given situation. 6.5 Choice of an appropriate data presentation mode. 6.6 Application of standards for tables and graphs. 6.7 Effective use of the features of a statistic software program. 6.8 Choice of appropriate sampling methods for a given situation. 6.9 Interval estimation to find the mean and the relative frequency for large samples.

REQUIRED TEXT

Johnson & Kuby*: Just the Essentials of Elementary Statistics,* Cengage Learning, 11th custom edition

COURSE CONTENT

1.1-1.4 Statistics
What Is Statistics?
Basic Terms
Measurability and Variability
Data Collection
Statistics and Technology

2.1-2.6 Descriptive Analysis and Presentation of Single-Variable Data
Pie Graph, Bar Graph, Stem and Leaf
Frequency Distributions and Histograms

Measures of Central Tendency, Measures of Dispersion
Mean and Standard Deviation of Frequency Distribution
Measures of Position

4.1-4.6 Probability
Probability of events, Rules of Probability
Mutually Exclusive Events, Independence
Permutations and Combinations (Teacher's Notes)

5.1-5.3, 6.1-6.5, 7.1-7.3 Probability Distributions
Binomial Distribution, Mean and Standard Deviation of the Binomial
Poisson Distribution (Instructor's notes to supplement text)
Normal and Standard Normal Distributions, Applications
Normal Approximation of the Binomial, Sampling Distributions and Sample Means, Application of Sampling Distribution of Sample Means

8.1-8.2 (Confidence Interval only), 9.1-9.2 (Confidence Interval and Sample Size)
Confidence Interval for Mean
Confidence Interval for Proportion
Determining the Sample Size
Hypothesis Testing (optional if time permits)

RESOURCES: **Math Website**: http://departments.johnabbott.qc.ca/departments/mathematics
Math Lab: located in H-022 and open from 9:00 to 16:00 on weekdays.
The Academic Success Centre: H-117, offers student learning skills classes and individual tutoring.

TEACHING METHODS
Classes are a mixture of lecture, discussion and problem-solving. All classes are integral parts of the course. Three hours of homework per week is normal. Generally each class introduces a new topic, followed by worked examples.

Please ask for help as soon as you encounter difficulties in this course. Review your notes regularly. Do your assignments as soon as possible, as the material is fresh in your mind. This also gives you a chance to get help before real (major) problems develop.

ASSESSMENT PLAN
a) Class Mark: homework, quizzes and tests. Specific weighting to be defined by individual teachers.
b) Final Exam

THE FINAL GRADE will be the better of **a) 50 % class mark and 50 % final exam**
OR b) 25 % class mark and 75 % final exam

Students must be available until the end of the final examination period to write exams.

ATTENDANCE POLICY:
You should not miss more than 6 classes. If you miss more than 6 classes without valid reasons, you can fail this course, especially if you miss one or more quizzes or tests. The enforcement of this policy is up to your instructor.

COURSE COSTS: Approximately $136 for textbook. You also need a calculator with statistical functions (approximately $20). You are not allowed to use a graphing calculator for tests and the final exam.

COLLEGE POLICIES: Article numbers refer to the IPESA (Institutional Policy on the Evaluation of Student Achievement), available at http://johnabbott.qc.ca/ipesa. Students are encouraged to consult the IPESA to learn more about their rights and responsibilities.
Changes to Evaluation Plan (Article 4.3) Changes to the evaluation plan during the semester require unanimous consent.
Mid-Semester Assessment MSA (Article 3.3) Students will receive an MSA in accordance with College procedures.
Religious Holidays (Article 3.2) Students who wish to observe religious holidays must inform their teacher in writing within the first two weeks of the semester of their intent.
Grade Reviews (Article 3.2) It is the responsibility of students to keep all assessed material returned to them for at least one month past the grade submission deadline in the event that they would want to request a grade review.
Cheating and Plagiarism (Articles 8.1 & 8.2) Cheating and plagiarism are serious infractions against academic integrity, which is highly valued at the College; they are unacceptable at John Abbott College. Students are expected to conduct themselves accordingly and must be responsible for all of their actions.