SACRED HEART UNIVERSITY
NATURAL SCIENCES DEPARTMENT
MATHEMATICS PROGRAM

SYLLABUS

TITLE: Fundamental Mathematics I

CODING: MAT 101

PREREQUISITE: CEEB 450-649

CREDITS: Three (3) credits, three (3) hours per week, one (1) semester

DESCRIPTION

This course focuses on simplifying and solving algebraic expressions and equations. It is an elementary course for students in the Natural Sciences or Business Administration Departments about sets of real numbers, laws of exponents, basic algebraic operations with polynomials and rational expressions. Expressions with radicals. Linear equations and inequalities and absolute value. The course requires the independent use of the Science Media Lab and incorporates the use of Web 2.0 tools. It requires active and collaborative student participation in problem solving and presentation of results.

JUSTIFICATION

The student who aspires to a Bachelor of Science or Business Administration must acquire some basic algebraic concepts required to perform effectively in these areas.

OBJECTIVES

Upon completion of the course MAT 101, the student will be able to:

1. Perform basic operations with real numbers

2. Perform basic algebraic operations: addition, subtraction, multiplication and division of polynomials and rational expressions.

3. Apply the laws of exponents and radicals.

4. Factor polynomials.

5. Solve linear equations and inequalities in one variable.

6. Solve word problems using linear equations.

7. Integrate the use of Web 2.0 tools for troubleshooting.

CONTENT

I. Sets and Real Numbers

    A. Definitions and operations with sets

    B. Intervals of real numbers on the number line

    C. Properties and operations with real numbers

II. Algebraic operations

    A. Basic laws of exponents

    B. Definition and operations with polynomials

    C. Factoring polynomials

    D. Operations with rational expressions and complex fractions

III. Linear equations and inequalities

    A. Solution linear equations. Word problems

    B. Solution linear inequalities. Graphs and intervals

    C. Solution absolute value equations

IV. Exponents

    A. Negative and rational exponents

    B. Definition, simplification and operations with radicals

Instructional strategies

The course is developed through lectures, presentation and discussion of problems. Student participation is encouraged. At the beginning of each class questions may be answered about the material covered in the previous lecture, assigned readings and problems. Independent use of the Science Media Lab and the incorporation of Web 2.0 tools.

EVALUATION

Partial exams		75%
Final exam		25%
	Total	100%

BIBLIOGRAPHY

TEXT

Angel, A. (2000). *Intermediate Algebra*, (9th edition). Prentice Hall

REFERENCES

Word Problems modules for MAT 101 and 102 prepared by Prof. Carmen Padial. 1992.

Angel, A. (1996). *Intermediate Algebra*, (4th edition). Prentice Hall

Barnett, R. (2006). *Algebra* (11th Edition). Mc Gran-Hill

Dugopolski, M, (2000). *Intermediate Algebra*, (5th edition). McGraw Hill

Fraser W. R. (1993). *Intermediate Algebra* PWS Publishing Company

Kaufmann J. E. (1996). *Intermediate Algebra* (5th edition). PWS Publishing Company

Lial, M.and Hornsby, J. (2000). *Intermediate Algebra* (8th edition). Addison Wesley

Spiegel, M. S; Moyer, R. (2004). *Algebra*, Mc Graw-Hill

Streeter J., Hutchinson D. and Hoezle L. (1993) *Intermediate Algebra* (edition). McGraw-Hill

Weltman, D. and Perez G. (1994). *Intermediate Algebra* (3rd edition). PWS Publishing Company

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- select Virtual Library and the page where you start to search for information and access the databases by discipline or in alphabetical order will appear

To access outside the University
- enter the address **http://biblioteca.sagrado.edu/**,
- selectVirtual Library and select the page where you can access databases by discipline or appear in alphabetical order.
- Enter the user name and password (Request in person the user name and password at the Library)

ELECTRONIC ADDRESSES

www.slideshare.net/awrigame/resolver-ecuacion-lineal.htm

www.youtube.com/watch?v=kgl.nthj4vo

www.geocities.com/jrvengador/alebrlineal/sieclinl.html

www.investigacion-operaciones.com/solucion-grafica.htm

www.giocities.com/jrvengador/algebralineal/sieclin1.html

www.scribd.com/doc/94528/ayudantie-6

www.freewebs.com/alineal/informatica/autoeva-rectaplano/rectplano.htm

www.metabase.net/docs/unibe/02466.html

www.buscalibros.cl/libro.php?libro=410284

www.mnlibros.com.ar/desplibro.asp?libro=9706865535

www.casadellibro.com/fichas/fichabiblio/0,3060,2900000743133,00html?codigo=2900000743133&ca=830

www.uylibros.com.uy/verlibro.asp?id=18547&idcat=31&idsubcat=42&idarea=1087

REASONABLE ACCOMODATION

Any student who needs reasonable accommodation should request the Associate Dean of Student Affairs.

November 2018