Eugenio María de Hostos Community College
Natural Sciences and Mathematics Departments
Winter Institute 2010

Time	Monday	Tuesday	Wednesday	Thursday
9:30 - 12:30	MAT A-534	PHY A-534	MAT A-534	PHY 210 A-534

Time	Monday	Tuesday	Wednesday	Thursday
1:30 - 4:30	MAT A-534	CHE A-534	MAT A-534	CHE A-534

Time	Monday	Tuesday	Wednesday	Thursday	Friday
8:00 - 10:30	ENGR 103 C-556	ENGR 103 C-556	ENGR 103 C-556	ENGR 103 C-556	ENGR 103 C-556

Time	Monday	Tuesday	Wednesday	Thursday
11:00 - 2:00	ENGR 204 A-432	ENGR 204 A-432	ENGR 204 A-432	ENGR 204 A-432

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City College/Hostos Community College
Bridges to Engineering Success

Engineering at Hostos Community College
Joint Degree/Dual Admission
A.S./B.E. Programs
with The City College of New York

Chemical Engineering
Civil Engineering
Electrical Engineering
Mechanical Engineering

For more information about the engineering programs contact:

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Chair of Mathematic Department

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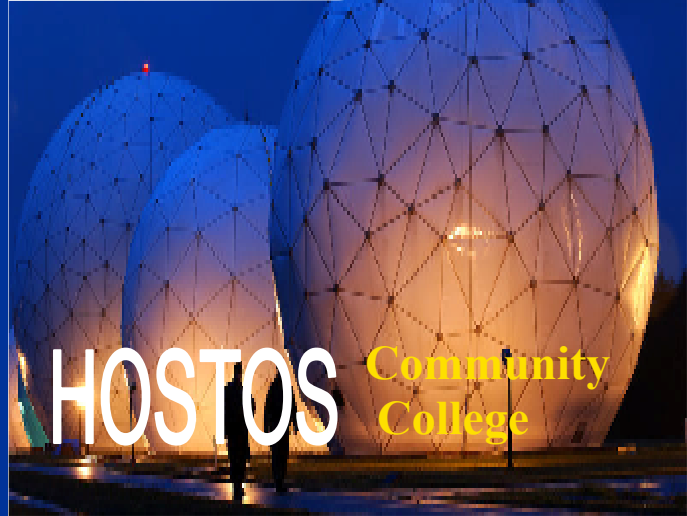
Acting Associate Dean
Faculty Development and Curriculum, &
Director, Center for Teaching and Learning

The Professor Magda Vasillov
Center for Teaching and Learning
Division of Academic Affairs

WINTER INSTITUTE 2010



Eugenio María de Hostos Community College
Mathematics and Natural Sciences Departments
Winter Institute 2010

Bridge to Chemistry 210 & 220

Semester: Winter Intersession 2010
(January 4 to January 21)
Instructors: **Prof. Francisco Fernández** (Sciences Dept.) and **Prof. Dionicio Taveras** (Math Dept.)
Class Hours: 1:30 pm – 4:30 pm
Class Room: A-534
Class Days: MAT-CHEM M/W
CHE 210-220 T / TH

Objectives:

On completing this course students should be able to start studying chemistry as part of the first college chemistry course (**Chemistry 210, Chemistry 220**)

Threshold Concepts and their Applications:

Math Threshold Concepts	Chemistry Application
Basic mathematical Concepts: • Calculators • Unit conversions • Percent • Scientific notations	• Applications in Chemistry • Stoichiometry • Thermo chemistry • Solutions, Percent composition, Percent yield • Solubility, ionic equilibrium
Other mathematical issues & Algebra: • Logarithms • Significant figures • First degree equations • Second and higher degree equations	• pH • Equilibrium • Thermodynamics • Gases • Chemical equations
Data Processing: • Functional relationships • Graphs • Problem Analysis	• Gases • Chemical equations • Balancing Red-ox equations • Hess Law • Chemical Equilibrium • Thermo chemistry • Thermodynamics • Applied Chemistry

Bridge to Physics 210

Semester: Winter Intersession 2010
(January 4 to January 21)
Instructors: **Prof. Yoel Rodríguez** (Sciences Dept.) and **Prof. Ross Flek** (Math Dept.)
Class Hours: 9:30 am – 12:30 pm
Class Room: A-534
Class Days: MAT-PHY M / W
PHY 210 T / TH

Objectives:

On completing this course students should be able to start studying mechanics as part of the first college physics course (**Physics 210**)

Threshold Concepts and their Applications:

Math Threshold Concepts	Physics Application
Trigonometry • Right Triangle Trigonometry • Definition of Trigonometry Functions: sin(a), cos(a), and tan(a); and their inverses $\sin^{-1}$(a), $\cos^{-1}$(a), and $\tan^{-1}$(a)), • Identities	• Physics-related problems (Daily-life situations) • Newton's Law of Motion (First Law, Second Law, and Third Law of motion)
Calculus • Vectors and Vector Addition • Unit Vectors • Products of vectors	• Physics-related problems (Daily-life situations) • Motion along a straight line • Motion in two or three dimensions • Newton's Law of Motion (First Law, Second Law, and Third Law of motion) • Work • Right-Hand Rule (e.g. Torque)
Calculus • Derivatives • Integrals	• Motion along a straight line • Motion in two or three dimensions • Newton's Law of Motion (First Law, Second Law, and Third Law of motion) • Work • Right-Hand Rule (e.g. Torque)

Bridge to Engr 103 Engr 204

Semester: Winter Intersession 2010
Bridge to Engr. 103
(January 4-January 22)
Class Hours: 8:00am-10:30am (except Jan. 4)
Class Room: A-511
Class Days: Engr. 103, M –F
Instructors: **Prof. Soe Hlaing**

Threshold Concepts and their Applications:

- Coding
- Linear Algebra
- Numeric integration
- Complex numbers
- Statistics

Bridge to Engr. 204

(January 4-January 22)

Class Hours: 11:00am-2:00pm
Class Room: A-432
Class Days: Engr. 204, M –TH
Instructors: **Prof. Samrat Batth**

Threshold Concepts and their Applications:

Basic Concepts • Systems of Units • Charge and current • Voltage • Poer and Energy • Circuits Elements	Basic Laws: • Ohm's Laws • Nodes, Branches, and Loops • Kirchhoff's Laws • Series Resistors and Voltage division • Wye-Delta transformations	Methods of Analysis • Nodal Analysis with Voltage Sources • Mesh analysis with Current Sources • Nodal and Mesh Analysis by Inspection • Circuit Analysis with PSpice
Circuits Theorems • Linearity Property • Superposition • Source Transformation • Thevenin's Theorem • Norton's Theorem • Derivations of Thevenin's and Norton's Theorems	Operational Amplifiers • Operational Amplifiers • Ideal Op Amplifiers • Inverting Amplifier • Noninverting Amplifier • Summing Amplifier • Difference Amplifier • Cascaded Op Amp Circuits	Capacitors and Inductors • Capacitors • Series and Parallel Capacitors • Inductors • Series and Parallel Inductors • Sinusoids/ Phasors • Source Transformation / Equivalent Circuits