



## NASHUA COMMUNITY COLLEGE COURSE OUTLINE FORM

<b>Course Title: College Composition</b>			
<b>Course Prefix &amp; No.: ENGL101N</b>	<b>Lecture Hours: 4</b>	<b>Lab Hours: 0</b>	<b>Credit Hours: 4</b>
<b>Department: Arts, Humanities, Communications &amp; Design</b>			
<b>Program: English</b>			
<b>Revision Date: 1/2021</b>			

### **Prerequisites: Accuplacer placement test or SAT score**

**Required Accuplacer Score:** Writing Conventions: 250 or higher  
WritePlacer: 5 or higher

#### **Required SAT Score after March 2016:**

Combined score of Critical Reading & Writing of at least a 470.

Students who score below the required Accuplacer or SAT scores may still be eligible for ENGL101 with a co-requisite workshop. See NCC Placement Score Grid document.

### **Entrance Skills:**

- Basic computer skills
- College level textbook reading skills
- College level organizational skills.
- College level note-taking skills
- College level information literacy to conduct research using data-bases and websites
- College level analytic thinking skills to develop thesis questions
- College level synthetic thinking skills to evaluate and use sources in a research paper based on the student's own thesis statements.

**Catalog Description:** In this course, students learn to write clearly and effectively for defined audiences through a variety of strategies. Emphasis is on the writing process from pre-writing through drafting, revising and editing. Students gain confidence through learning the basic principles of effective expository and persuasive composition and the application of these principles in writing essays and documented research papers. Students become aware of the variety of strategies, behaviors, habits and attitudes and choose those that help them improve. Students will also read and examine a wide variety of writers and writing styles. This class is a core requirement for all degree programs at NCC. **Students who do not satisfactorily place into ENGL101N with the required Accuplacer or SAT scores will be required to enroll in the corresponding Co-Requisite Workshop.**

**Prerequisite: Accuplacer score or SAT score**

**Course Competencies:**

<b>Competency (Knowledge and Skills)</b>  Students will be able to:	<b>Critical Thinking Level</b>	<b>Linked to Program Outcome(s) #</b>
1. Use the following steps in the writing process as the way to develop writing product <ul style="list-style-type: none"> <li>• Prewrite</li> <li>• Write/draft</li> <li>• Revise</li> <li>• Edit</li> </ul>	<ul style="list-style-type: none"> <li>• Synthesis</li> </ul>	
2. Adapt the writing process to produce writing product that <ul style="list-style-type: none"> <li>• Has a focus</li> <li>• Is developed</li> <li>• Is organized</li> <li>• Uses language appropriate to the purpose and audience or uses standard written English</li> <li>• Uses appropriate format</li> <li>• Is a communicating, readable document</li> </ul>	<ul style="list-style-type: none"> <li>• Application</li> </ul>	
3. Recognize writing problems and fix them	<ul style="list-style-type: none"> <li>• Knowledge</li> <li>• Comprehension</li> <li>• Analysis</li> </ul>	
4. Compose writing as part of a complex process involving recursive steps	<ul style="list-style-type: none"> <li>• Synthesis</li> </ul>	

## **Course Outline:**

- I. Generate ideas
  - A. free write
  - B. brainstorm
  - C. cluster
  - D. outline
  - E. journal
- II. Define audience
- III. Thesis and organization
- IV. Modes of writing
- V. Construct drafts
- VI. Revise
- VII. Research techniques

## **Performance Evaluation:**

<b>Formative Assessments</b>	<b>Summative Assessments</b>
<ul style="list-style-type: none"><li>• Four draft essays including narrative, process, cause/effect, and argument/persuasive.</li><li>• Grammar and concept quizzes.</li><li>• Peer workshopping/editing</li></ul>	<ul style="list-style-type: none"><li>• Four final essays including narratives, process, cause/effect, and argument/persuasive.</li><li>• Oral defense of the argument essay</li></ul>

## **Method of Instruction:**

- Lecture
- Group discussion
- Peer editing
- Conferencing
- Frequent writing in and out of class
- Self, peer and faculty input.

**Instructional Facilities:**

- A classroom equipped with standard computer and projection options.
- Occasional use of a computer lab for student research and writing).

**Revision History:**

- April 2009, May 2001; May 2013;
- Dates Renumbered: September 2002; June 2004
- April 2013 R. Delude
- January 2015 renumbered
- January 2017: Co-requisite statement added to description/S. Bashalany
- September 2017 Jennifer Tripp
- January 2021 Jennifer Tripp

Will this course be taught online? Yes  No

If yes, please complete the Online Course Outline Form.



**NASHUA COMMUNITY COLLEGE**  
**COURSE OUTLINE FORM**

<b>Course Title:</b> <i>Calculus I</i>			
<b>Course Prefix &amp; No.:</b> <i>MATH210</i>	<b>Lecture Hours:</b> 4	<b>Lab Hours:</b> 0	<b>Credit Hours:</b> 4
<b>Department:</b> <i>Mathematics</i>			
<b>Program:</b> <i>Mathematics</i>			
<b>Revision Date:</b> 2/2015			

**Prerequisites/ Co-requisites:** (Explain the need for a prerequisite or a co-requisite) See Appendix 2. *Precalculus MATH120. In order to perform the proper mathematical procedures necessary for calculus, it is imperative that students have mastery of algebra, trigonometry and pre-calculus material.*

**Required Accuplacer Score:** *60 or higher in arithmetic, 85 or higher in algebra and 78 or higher in college level mathematics.*

**Entrance Skills:** “Without the following skills, competencies and/or knowledge, students entering this course will be highly unlikely to succeed” Include reading, writing and computational skills as well as computer skills. Prior discipline knowledge should also be considered.

*In order to be successful in this course, students must be able to read mathematical notation, and perform accurate mathematics using methods from algebra, trigonometry and pre-calculus.*

**Catalog Description:** Describe the course in a clear and succinct manner. Include the overall purpose of the course as well as the requirements. Explain how the course does or does not contribute to degree requirements. Developmental and ESL courses do not count towards degree requirements.

*Calculus is introduced through the study of functions, limits, differentiation and higher order derivatives. Derivatives of polynomial, trigonometric, inverse trigonometric, exponential, and logarithmic functions are covered. Problems in optimization, curve sketching and related rates are considered. Integration is introduced by analyzing the definite and indefinite integral. Prerequisite: Placement Test or MATH120 or Permission of instructor.*

**Course Competencies:** Instructors will identify what is expected of students by developing learning competencies. Performance competencies focus on outcomes, results and learning. Competencies are preceded by the statement: “Students will be able to:”

<b>Competency (Knowledge and Skills)</b>	<b>Critical Thinking Level</b>	<b>Linked to Program Outcome(s) #</b>
Students will be able to:		
1. Discuss the notion of a limit	Comprehension	
2. Evaluate limits of algebraic and trigonometric functions	Comprehension and Application	
3. Know and apply the basic rules of differentiation including: power rule, chain rule, product rule, quotient rule, and implicit differentiation	Knowledge, Comprehension, and Application	
4. Accurately find the derivative of trigonometric, inverse trigonometric, exponential, and logarithmic functions	Knowledge, Comprehension, and Application	
5. Use differentiation in applications including: optimization and related rates, and L'Hopital's Rule	Knowledge, Comprehension, and Application	
6. Know and apply the fundamental theorem of calculus	Knowledge, Comprehension, and Application	
7. Evaluate integrals and be able to calculate the area under a curve	Knowledge, Comprehension and Application	

**Course Outline:** The course outline will provide a general overview of the content that will be included in the course as they relate to the competencies. The first column lists the general content and the second column will allow for subtopics that will be covered.

Content Topic	Subtopics( a., b., etc.)
<i>Limits</i>	<ul style="list-style-type: none"> <li>a. <i>Definition of a limit</i></li> <li>b. <i>Finding limits graphically</i></li> <li>c. <i>Evaluating limits</i></li> <li>d. <i>Infinite limits</i></li> </ul>
<i>Differentiation</i>	<ul style="list-style-type: none"> <li>a. <i>Definition of derivative</i></li> <li>b. <i>Power rule</i></li> <li>c. <i>Chain rule</i></li> <li>d. <i>Product rule</i></li> <li>e. <i>Quotient rule</i></li> <li>f. <i>Derivatives of transcendental functions</i></li> <li>g. <i>Implicit Differentiation</i></li> </ul>
<i>Applications of Differentiation</i>	<ul style="list-style-type: none"> <li>a. <i>First and second derivative tests</i></li> <li>b. <i>Optimization</i></li> <li>c. <i>Related rates</i></li> <li>d. <i>L'Hopital's rule</i></li> </ul>
<i>Integration</i>	<ul style="list-style-type: none"> <li>a. <i>Fundamental Theorem of Calculus</i></li> <li>b. <i>Anti-derivatives</i></li> <li>c. <i>Definite integrals</i></li> <li>d. <i>Basic Integration techniques</i></li> <li>e. <i>Area under curves</i></li> </ul>

**Performance Evaluation:** In this section please explain the different Assessment Tools that will be used to demonstrate student learning. The assessment ideally should include quantitative measures such as standardized tests, essays, locally-developed tests and if applicable, licensure exams. Qualitative measures such as portfolios of student work, written reports, oral presentations and interviews should be included as well.

<b>Formative Assessments</b>	<b>Summative Assessments</b>
<p><i>Quizzes</i>  <i>Homework Assignments</i>  <i>Classroom Assignments</i></p>	<p><i>Unit Exams</i>  <i>Mid-term and Final Comprehensive Examinations</i></p>

**Method of Instruction:** Examples include lecture, group discussion field trip, guest speakers, individual instruction, field observation, etc.

- *Lecture and discussion*
- *Readings*
- *Illustrations and Examples*
- *Classroom problem solving*
- *Assigned problems*

**Instructional Facilities:** List the type of classroom and any special facilities which may be required such as audiovisual, maps, lab facilities, etc.

*Classroom with sufficient white board space and ENO board.*

**Revision History:** Please include the dates of past revisions and if possible person(s) responsible for the revision.

Updated Feb. 2105

Will this course be taught online? Yes \_\_\_ No x

If yes, please complete the Online Course Outline Form.



## APPENDIX 1

### Bloom's Taxonomy Action Verbs

Definitions	Knowledge	Comprehension	Application	Analysis	Synthesis	Evaluation
<b>Bloom's Definition</b>	Remember previously learned information.	Demonstrate an understanding of the facts.	Apply knowledge to actual situations.	Break down objects or ideas into simpler parts and find evidence to support generalizations.	Compile component ideas into a new whole or propose alternative solutions.	Make and defend judgments based on internal evidence or external criteria.
<b>Verbs</b>	Arrange Define Describe Duplicate Identify Label List Match Memorize Name Order Outline Recognize Relate Recall Repeat Reproduce Select State	Classify Convert Defend Describe Discuss Distinguish Estimate Explain Express Extend Generalized Give example(s) Identify Indicate Infer Locate Paraphrase Predict Recognize Rewrite Review Select Summarize Translate	Apply Change Choose Compute Demonstrate Discover Dramatize Employ Illustrate Interpret Manipulate Modify Operate Practice Predict Prepare Produce Relate Schedule Show Sketch Solve Use Write	Analyze Appraise Breakdown Calculate Categorize Compare Contrast Criticize Diagram Differentiate Discriminate Distinguish Examine Experiment Identify Illustrate Infer Model Outline Point out Question Relate Select Separate Subdivide	Arrange Assemble Categorize Collect Combine Comply Compose Construct Create Design Develop Devise Explain Formulate Generate Plan Prepare Rearrange Reconstruct Relate Reorganize Revise Rewrite Set up Summarize Synthesize Tell Write	Appraise Argue Assess Attach Choose Compare Conclude Contrast Defend Describe Discriminate Estimate Evaluate Explain Judge Justify Interpret Relate Predict Rate Select Summarize Support Value

## APPENDIX 2

### **Establishing Prerequisites and Corequisites\***

A prerequisite or a corequisite must be carefully considered when added to a course. Some things to take into consideration when deciding on whether to add a prerequisite or corequisite are whether students have a history of requiring outside services such as tutoring, Accuplacer scores, previous success rates of students and course completion rates. Prior discipline knowledge should also be considered. These conditions can be used to explain the need for a prerequisite or corequisite.

Prerequisites or corequisites may be established for any of the following purposes:

- a. An outside accrediting body expressly requires the prerequisite. This will be more likely in CTE programs.
- b. The prerequisite course will assure that the student has the skills, concepts, and/or information that is presupposed in terms of the course or program for which it is being established. A student who has not met the prerequisite is highly unlikely to receive a satisfactory grade in the course for which the prerequisite is being established.
- c. The corequisite course will assure that a student acquires the necessary skills, concepts and/or information. A student who does not take the corequisite is highly unlikely to receive a satisfactory grade in the class.

\*Adapted from Guidelines for Title 5 Regulations Section 55003 Policies for Prerequisites, Corequisites and Advisories on Recommended Preparation



# NASHUA COMMUNITY COLLEGE

## COURSE OUTLINE FORM

<b>Course Title:</b> <i>Calculus II</i>			
<b>Course Prefix &amp; No.:</b> <i>MATH211</i>	<b>Lecture Hours:</b> 4	<b>Lab Hours:</b> 0	<b>Credit Hours:</b> 4
<b>Department:</b> <i>Mathematics</i>			
<b>Program:</b> <i>Mathematics</i>			
<b>Revision Date:</b>			

**Prerequisites/ Co-requisites:** (Explain the need for a prerequisite or a co-requisite) See Appendix 2. *Calculus I MATH210. In order to perform the proper mathematical procedures necessary for calculus, it is imperative that students have mastery of algebra, trigonometry, and calculus I material.*

**Required Accuplacer Score:** *NA*

**Entrance Skills:** “Without the following skills, competencies and/or knowledge, students entering this course will be highly unlikely to succeed” Include reading, writing and computational skills as well as computer skills. Prior discipline knowledge should also be considered.

*In order to be successful in this course, students must be able to read mathematical notation, and perform accurate mathematics using methods from algebra, trigonometry and calculus I.*

**Catalog Description:** Describe the course in a clear and succinct manner. Include the overall purpose of the course as well as the requirements. Explain how the course does or does not contribute to degree requirements. Developmental and ESL courses do not count towards degree requirements.

*This course is a continuation of calculus I. Topics include definite and indefinite integration and the use of calculus in the calculation of areas and volumes. Various integration methods are covered including: integration by parts, trigonometric substitution, and partial fractions. Improper integrals are introduced as well as the study of infinite sequences and series, power series, Taylor series, and determining convergence or divergence of series.: Prerequisite MAH210*

**Course Competencies:** Instructors will identify what is expected of students by developing learning competencies. Performance competencies focus on outcomes, results and learning. Competencies are preceded by the statement: “Students will be able to:”

<b>Competency (Knowledge and Skills)</b>	<b>Critical Thinking Level</b>	<b>Linked to Program Outcome(s) #</b>
Students will be able to:		
1. Find the volume of revolution by the disc and shell methods	Comprehension, Application	
2. Integrate expressions in algebraic, trigonometric, logarithmic, and exponential forms	Application	
3. Integrate by trigonometric substitution, integration by parts, and partial fractions	Application	
4. Evaluate improper integrals	Application	
5. Categorize and solve basic first order differential equations	Comprehension, Application	
6. Select and perform the appropriate test to determine behavior of infinite series	Analysis	
7. Represent functions using Taylor series	Comprehension, Application	
8. Determine the radius of convergence for Taylor series	Comprehension, Application	

**Course Outline:** The course outline will provide a general overview of the content that will be included in the course as they relate to the competencies. The first column lists the general content and the second column will allow for subtopics that will be covered.

Content Topic	Subtopics( a., b., etc.)
<i>Application of Integration</i>	<ul style="list-style-type: none"> <li>a. <i>Area under curves</i></li> <li>b. <i>Disc method of calculating volume</i></li> <li>c. <i>Shell method of calculating volume</i></li> </ul>
<i>Integration Techniques</i>	<ul style="list-style-type: none"> <li>a. <i>Integration by parts</i></li> <li>b. <i>Trigonometric integrals</i></li> <li>c. <i>Rationalizing substitutions</i></li> <li>d. <i>Partial Fractions</i></li> <li>e. <i>Improper Integrals</i></li> <li>f. <i>Introduction to differential equations</i></li> </ul>
<i>Sequences and Infinite Series</i>	<ul style="list-style-type: none"> <li>a. <i>Sequences</i></li> <li>b. <i>Integral Test</i></li> <li>c. <i>Ratio Test and Comparison Tests</i></li> </ul>
<i>Power Series</i>	<ul style="list-style-type: none"> <li>a. <i>Determine the radius of convergence of power series</i></li> <li>b. <i>Represent functions using Taylor series</i></li> <li>c. <i>Determine the radius of convergence for Taylor series</i></li> </ul>

**Performance Evaluation:** In this section please explain the different Assessment Tools that will be used to demonstrate student learning. The assessment ideally should include quantitative measures such as standardized tests, essays, locally-developed tests and if applicable, licensure exams. Qualitative measures such as portfolios of student work, written reports, oral presentations and interviews should be included as well.

Formative Assessments	Summative Assessments
<p><i>Quizzes</i>  <i>Homework Assignments</i>  <i>Classroom Assignments</i></p>	<p><i>Unit Exams</i>  <i>Mid-term and Final Comprehensive Examinations</i></p>

**Method of Instruction:** Examples include lecture, group discussion field trip, guest speakers, individual instruction, field observation, etc.

- *Lecture and discussion*
- *Readings*
- *Illustrations and Examples*
- *Classroom problem solving*
- *Assigned problems*

**Instructional Facilities:** List the type of classroom and any special facilities which may be required such as audiovisual, maps, lab facilities, etc.

*Classroom with sufficient white board space and ENO board.*

**Revision History:** Please include the dates of past revisions and if possible person(s) responsible for the revision.

Will this course be taught online? Yes \_\_\_ No x

If yes, please complete the Online Course Outline Form.



**NASHUA COMMUNITY COLLEGE**  
**COURSE OUTLINE FORM**

<b>Course Title: Physics I</b>			
<b>Course Prefix &amp; No.: PHYS130N</b>	<b>Lecture Hours: 3</b>	<b>Lab Hours: 2 Recitation Hour:1</b>	<b>Credit Hours: 4</b>
<b>Department: Science and Engineering Technology</b>			
<b>Program:</b>			
<b>Revision Date: 1/2016</b>			

<p><b>Prerequisites/ Co-requisites:</b> MATH110N (A grade of C or better is recommended) or <b>Required Accuplacer Score:</b> College Level Mathematics Score above53</p>
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<p><b>Entrance Skills:</b> Without the following skills, competencies and/or knowledge, students entering this course will be highly unlikely to succeed: the ability to read a college level textbook, to write college level lab reports and to demonstrate college level math skills.</p>
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<p><b>Catalog Description:</b> Serves as the first semester of a one-year course which surveys the field of physics at a non-calculus level. Topics include force and motion, vectors, gravity, energy and momentum, heat and thermodynamics, and oscillations.</p>
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### Course Competencies:

Competency (Knowledge and Skills)	Critical Thinking Level	Linked to Program Outcome(s) #
Students will be able to:		
1. Apply mathematical skills, at the algebraic level, to analyze physical situations.	Knowledge, Application, Analysis	
2. Demonstrate problem solving skills in problems concerning physical situations.	Knowledge, Application, Analysis	
3. Explain the relevance and importance of physics to everyday experiences.	Knowledge, Application, Analysis	
4. Demonstrate lab techniques based on the scientific method.	Knowledge, Application	
5. Demonstrate the ability to communicate both qualitative and quantitative information, orally and written.	Comprehension, Application	

### Course Outline

Content Topic	Subtopics
Introduction to the Study of Physics	A. Measurements and Calculations B. Units and Standards C. Unit Conversions D. Problem Solving

<b>Motion in One Dimension</b>	<ul style="list-style-type: none"> <li>A. Distance, Position and Displacement</li> <li>B. Speed and Velocity</li> <li>C. Acceleration</li> <li>D. Kinematic Equations</li> <li>E. Free Fall</li> </ul>
<b>Motion in Two Dimensions</b>	<ul style="list-style-type: none"> <li>A. Vectors</li> <li>B. Vector Operations</li> <li>C. Relative Velocity</li> <li>D. Projectile Motion</li> </ul>
<b>Forces and Motion</b>	<ul style="list-style-type: none"> <li>A. The Concept of Force and Net Force</li> <li>B. Newton's Laws of Motion</li> <li>C. Applications of Newton's Laws</li> <li>D. Friction</li> <li>E. Springs and Elasticity</li> </ul>
<b>Circular Motion and Gravitation</b>	<ul style="list-style-type: none"> <li>A. Angular Measure</li> <li>B. Angular Speed and Velocity</li> <li>C. Uniform Circular Motion</li> <li>D. Angular Acceleration</li> <li>E. Newton's Law of Gravitation</li> </ul>
<b>Rotational Motion and Equilibrium</b>	<ul style="list-style-type: none"> <li>A. Rigid Bodies, Translations, and Rotations</li> <li>B. Torque</li> <li>C. Center of Gravity</li> <li>D. Equilibrium, and Stability</li> <li>E. Rotational Dynamics</li> </ul>
<b>Momentum</b>	<ul style="list-style-type: none"> <li>A. Linear Momentum</li> <li>B. Impulse</li> <li>C. The Conservation of Linear Momentum</li> <li>D. Inelastic Collisions</li> <li>E. Angular Momentum</li> <li>F. The Conservation of Angular Momentum</li> </ul>
<b>Energy, Work and Heat</b>	<ul style="list-style-type: none"> <li>A. Work</li> <li>B. Kinetic Energy</li> <li>C. Potential Energy</li> <li>D. Conservation of Energy</li> <li>E. Elastic Collisions</li> <li>F. Power</li> <li>G. Temperature, Thermal Energy and Heat</li> <li>H. First Law of Thermodynamics</li> <li>I. Entropy and the Second Law</li> <li>J. Heat Pumps and Refrigerators</li> </ul>

<b>Thermal Properties of Matter</b>	<ul style="list-style-type: none"> <li>A. Atomic Model of Matter</li> <li>B. Ideal Gasses and Ideal Gas Processes</li> <li>C. Thermal Expansion</li> <li>D. Specific Heat</li> <li>E. Calorimetry</li> <li>F. Heat Transfer</li> </ul>
<b>Fluids</b>	<ul style="list-style-type: none"> <li>A. Fluids and Density</li> <li>B. Pressure</li> <li>C. Buoyancy</li> <li>D. Fluids in Motion</li> <li>E. Viscosity</li> </ul>
<b>Oscillations</b>	<ul style="list-style-type: none"> <li>A. Simple Harmonic Motion (SHM)</li> <li>B. SHM - Springs</li> <li>C. SHM - Simple and Physical Pendula</li> <li>D. Resonance</li> <li>E. Damping</li> </ul>

## Performance Evaluation

<p><b>Formative Assessments</b></p> <ul style="list-style-type: none"> <li>Homework Assignments</li> <li>Lab Reports</li> <li>Quizzes</li> </ul>	<p><b>Summative Assessments</b></p> <ul style="list-style-type: none"> <li>Unit Exams</li> <li>Final Exam</li> </ul>
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**Method of Instruction:**

Lecture with Demonstrations  
Hands on Lab Activities  
Individual and Collaborative Learning  
Interactive Computer Activities

**Instructional Facilities:** Fully equipped Physics Lab with Computer Based Lab Equipment

Suggested Texts and Material:

College Physics: A Strategic Approach; 3<sup>rd</sup> Edition; Knight, Jones & Field;  
Pearson 2014

A scientific calculator

**Revision History:** Date outline Developed: January 1995

Dates of Revisions: August 1998, May 1999, May 2002, May 2004,  
September 2005 (text and numbering), November 2006 (text),  
September 2007 (text), September 2011 (text), May 2013 (format)  
May 2014 – Revised Content and added recitation hour  
Jan 2016 – Moved waves/sound to Physics II

Outline developed by J. Kalinski

Outline revised by J. Kalinski (prior to May 2002) and R. Bragdon (since May 2002)

Will this course be taught online? Yes \_\_\_ No \_\_\_ X



**NASHUA COMMUNITY COLLEGE**  
**COURSE OUTLINE FORM**

<b>Course Title: Physics II</b>			
<b>Course Prefix &amp; No.: PHYS131N</b>	<b>Lecture Hours: 3</b>	<b>Lab Hours:2 Recitation Hour:1</b>	<b>Credit Hours: 4</b>
<b>Department: Science and Engineering Technology</b>			
<b>Program:</b>			
<b>Revision Date: 1/2016</b>			

<b>Prerequisites/ Co-requisites: PHYS130N Physics I</b>
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<b>Entrance Skills:</b> Without the following skills, competencies and/or knowledge, students entering this course will be highly unlikely to succeed: the ability to read a college level textbook, to write college level lab reports and to demonstrate college level math skills.
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<b>Catalog Description:</b> A continuation of the study of physics at the non-calculus level. Topics include waves and sound, optics, electricity and magnetism, atoms, nuclei and modern physics.
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**Course Competencies:**

<b>Competency (Knowledge and Skills)</b>	<b>Critical Thinking Level</b>	<b>Linked to Program Outcome(s) #</b>
Students will be able to:		
1. Apply mathematical skills, at the algebraic level, to analyze physical situations.	Knowledge, Application, Analysis	
2. Demonstrate problem solving skills in problems concerning physical situations.	Knowledge, Application, Analysis	
3. Explain the relevance and importance of physics to everyday experiences.	Knowledge, Application, Analysis	
4. Demonstrate lab techniques based on the scientific method.	Knowledge, Application	
5. Demonstrate the ability to communicate both qualitative and quantitative information, orally and written.	Comprehension, Application	

## Course Outline:

<b>Waves and Sound</b>	<ul style="list-style-type: none"><li>A. The Wave Model</li><li>B. Travelling Waves</li><li>C. Power and Intensity in Waves</li><li>D. The Doppler Effect</li><li>E. Superposition and Wave Interference</li><li>F. Standing Waves</li><li>G. Strings, Tubes and Harmonics</li></ul>
<b>Wave Optics</b>	<ul style="list-style-type: none"><li>A. Thin Film Interference</li><li>B. Single- and Double-Slit Interference</li><li>C. Diffraction</li></ul>
<b>Geometric Optics</b>	<ul style="list-style-type: none"><li>A. Reflection</li><li>B. Refraction</li><li>C. Thin Lenses</li><li>D. Ray Tracing and Optical Instruments</li></ul>
<b>Electricity</b>	<ul style="list-style-type: none"><li>A. Electric Charge</li><li>B. Coulomb's Law</li><li>C. The Electric Field</li><li>D. Electric Potential</li><li>E. Capacitors</li></ul>
<b>Simple Circuits</b>	<ul style="list-style-type: none"><li>A. Current and Resistance</li><li>B. Ohm's Law</li><li>C. Series and Parallel Circuits</li><li>D. Kirchoff's Laws</li><li>E. RC Circuits</li></ul>
<b>Magnetism</b>	<ul style="list-style-type: none"><li>A. Magnets and Magnetic Fields</li><li>B. Sources of Magnetic Fields</li><li>C. Ampere's Law</li><li>D. Motion of a Charged Particle in a Magnetic Field</li><li>E. Faraday's Law</li><li>F. EM Waves</li></ul>
<b>AC Circuits (Time Permitting)</b>	<ul style="list-style-type: none"><li>A. Transformers</li><li>B. Inductors</li><li>C. RL Circuits</li><li>D. Oscillator (RLC) Circuits</li></ul>

<b>Modern Physics</b>	A. Uncertainty Principle B. Atomic Energy Levels and Transitions C. Special Theory of Relativity D. Nuclear Physics
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**Performance Evaluation:**

<b>Formative Assessments</b>  Homework Assignments Lab Reports Quizzes	<b>Summative Assessments</b>  Unit Exams Final Exam
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<b>Method of Instruction:</b>  Lecture with Demonstrations Hands on Lab Activities Individual and Collaborative Learning Interactive Computer Activities
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<b>Instructional Facilities:</b> Fully equipped Physics Lab with Computer Based Lab Equipment  Suggested Texts and Material: College Physics: A Strategic Approach; 3rd Edition; Knight, Jones & Field; Pearson 2014  A scientific calculator
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**Revision History:** Outline Developed: January 1995

Dates of Revisions: August 1998, May 1999, May 2002, May 2004,  
September 2005 (text and numbering), November 2006 (text),  
September 2007 (text), September 2011 (text), May 2013 (format)  
May 2014 – Revised Content and added recitation hour  
January 2016 – Revised content (added waves/sound from Physics I)

Outline developed by J. Kalinski

Outline revised by J. Kalinski (prior to May 2002) and R. Bragdon (since May 2002)

Will this course be taught online? Yes \_\_\_ No \_\_\_ X

If yes, please complete the Online Course Outline Form.



**NASHUA COMMUNITY COLLEGE**  
**COURSE OUTLINE FORM**

<b>Course Title: Human Relations</b>			
<b>Course Prefix &amp; No.: PSYC130N</b>	<b>Lecture Hours:</b> 3	<b>Lab Hours:</b> 0	<b>Credit Hours:</b> 3
<b>Department: Education and Applied and Behavioral Sciences</b>			
<b>Revision Date: 3/2013</b>			

**Entrance Skills:**

There are no course prerequisites for this class but students having good writing and oral expression skills will have a better chance of successful completion of this course.

**Catalog Description:** This course will promote student exploration of intrapersonal (within self) and interpersonal (between self and others) aspects of human relationships. An understanding of basic psychological concepts and their connection to interpersonal relationships will be presented. Integration of effective communication, stress reduction, and team and leadership strategies in both the home and workplace will be encouraged.

**Course Competencies:**

<b>Competency (Knowledge and Skills)</b>	<b>Critical Thinking Level</b>	<b>Linked to Program Outcome(s) #</b>
Students will be able to:		
1. Define and describe basic psychological concepts as they relate to human relationships.	Knowledge and Comprehension	
2. Describe basic concepts related to personality and apply to understanding of self and others.	Comprehension and Application	
3. Define emotion and analyze the role it has on individual behavior.	Knowledge, Analysis and Synthesis	
4. Describe effective communication within social networks and promote student assessment of their own communication styles.	Application and Evaluation	
5. Define stress and identify the effect it has on behavior and performance.	Comprehension, Analysis and Synthesis	
6. Critically analyze the role human factors play in one's ability to be an effective worker.	Analysis	
<p>7. Identify characteristics associated with teamwork and leadership and evaluate one's application of those characteristics.</p> <p>8. Compare strategies intended to improve difficult relationships.</p> <p>9. Synthesize and apply knowledge of human relationships to professional settings.</p>	<p>Analysis and Evaluation</p> <p>Analysis, Evaluation and Synthesis</p> <p>Application and Synthesis</p>	

**Course Outline:** The course outline will provide a general overview of the content that will be included in the course as they relate to the competencies. The first column lists the general content and the second column will allow for subtopics that will be covered.

<b>Content Topic</b>	<b>Subtopics ( a., b., etc.)</b>
Introduction and Overview	
About Communication	A. Nature Vs. Nurture –Influence on Communication B. Communication Needs C. Models of Human Communication D. Why Interpersonal Communication Matters E. Identifying Competent Communication
Culture and Gender	A. Understanding How Culture Affects Communication B. Understanding How Gender Affects Communication
Intrapersonal Communication	A. Understanding Self-Concept B. Self-Esteem C. Communicating the Self-Self Disclosure D. Exemplifying Emotional Regulation
Interpersonal Communication Skills	A. The Nature of Language B. The Use and Abuse of Words C. Improving Language Use

<p>Nonverbal Communication</p>	<p>A. Functions of Nonverbal Communication  B. Ten Channels of Nonverbal Communication  C. Exhibiting Appropriate Nonverbal Communication Skills</p>
<p>Listening</p>	<p>A. Listening Effectively  B. Types of Listening  C. Identifying Barriers to Effective Listening  D. Becoming an Effective Listener</p>
<p>Emotion</p>	<p>A. Understanding Emotions  B. Influences on Emotional Expression  C. Demonstrating Effective Emotional Communication Skills</p>
<p>Interpersonal Communication in Professional Relationships</p>	<p>A. Social Relationships in the Workplace  B. Utilizing Effective Communication with Co-workers, Superiors and Subordinates</p>
<p>Interpersonal Relationships in Romantic and Family Relationships</p>	<p>A. Effective Communication in Romantic Relationships  B. Effective Communication in Families  B. Creating a Positive Communication Climate</p>
<p>Interpersonal Conflict</p>	<p>A. Defining Interpersonal Conflict  B. Identification of Common Conflict Sources  C. Deceptive Communication  D. Applying Strategies to Manage Conflict Successfully</p>

**Performance Evaluation:** In this section please explain the different Assessment Tools that will be used to demonstrate student learning. The assessment ideally should include quantitative measures such as standardized tests, essays, locally-developed tests and if applicable, licensure exams. Qualitative measures such as portfolios of student work, written reports, oral presentations and interviews should be included as well.

<b>Formative Assessments</b>	<b>Summative Assessments</b>
Quizzes Class Discussions Small Group Work Reflective Essays	Group Project Group Oral Presentation Final Paper

<b>Method of Instruction:</b>
Lecture Group Discussion Small group work You Tube Videos Journal Articles Online Articles and Viewings Student Presentations

<b>Instructional Facilities:</b>
Computer

<b>Revision History</b>
Date Outline Developed: May 1994 Dates of Revision: October 1998, May 2005, November 2010 Reviewed Sept 2007 Revised: Fall 2012 J.Barnes Reviewed: March 2013 J.Barnes

Will this course be taught online? Yes\_\_\_No\_x\_