



Science, Technology, Engineering, and Mathematics (Stem) Division  
1400 Tanyard Road, Sewell, NJ 08080  
856-468-5000

## **PHY 103: GENERAL PHYSICS I**

Syllabus

Lecture Hours/Credits: 3/3/4

### **Catalog Description**

*Prerequisite:* MAT 110 – Algebra and Trigonometry and RDG 099 – Introduction to College Reading III

Students will study principles of classical mechanics which include: kinematics, dynamics, statics, energy, momentum, rotational motion and mechanical properties of materials. The laboratories are integrated into each subject area in order to reinforce the concepts presented to the student.

### **Textbook and Course Materials**

It is the responsibility of the student to confirm with the bookstore and/or their instructor the textbook, handbook, and any other materials required for their specific course and section.

Click here to see current textbook prices at [rcgc.bncollege.com](http://rcgc.bncollege.com).

### **Evaluation Assessment**

#### **Online Proctoring**

All courses offered at RCSJ, whether they are web-enhanced, hybrid, or fully online, may include assessments that make use of Online Proctoring. To find out more about Online Proctoring, and to learn about the minimum technical requirements, visit [rcsj.edu/elearning/online-proctoring](http://rcsj.edu/elearning/online-proctoring).

### **Grading Distribution**

Grading to be determined by individual instructors.

Individual instructors may include the following assessment(s):

- Exams
- Quizzes
- Class Discussions
- Written Assignments
- Attendance and Participation

## Grading

The grading scale for each course and section will be determined by the instructor and distributed the first day of class.

## Rowan College of South Jersey Core Competencies

(Based on the NJCCC General Education Foundation - August 15, 2007; Revised 2011; Adopted 2014)

This comprehensive list reflects the core competencies that are essential for all RCSJ graduates; however, each program varies regarding competencies required for a specific degree. Critical thinking is embedded in all courses, while teamwork and personal skills are embedded in many courses.

1. **Written and Oral Communication:** Students will communicate effectively in both speech and writing.
2. **Quantitative Knowledge and Skills:** Students will use appropriate mathematical and statistical concepts and operations to interpret data and to solve problems
3. **Scientific Knowledge and Reasoning:** Students will use the scientific method of inquiry, through the acquisition of scientific knowledge.
4. **Technological Competency:** Students will use computer systems or other appropriate forms of technology to achieve educational and personal goals
5. **Society and Human Behavior:** Students will use social science theories and concepts to analyze human behavior and social and political institutions and to act as responsible citizens.
6. **Humanistic Perspective:** Students will analyze works in the fields of art, history, music, or theater; literature; philosophy and/or religious studies; and/or will gain competence in the use of a foreign language
7. **Historical Perspective:** Students will understand historical events and movements in World, Western, non-Western or American societies and assess their subsequent significance.
8. **Global and Cultural Awareness:** Students will understand the importance of a global perspective and culturally diverse peoples.
9. **Ethical Reasoning and Action:** Students will understand ethical issues and situations.
10. **Information Literacy:** Students will address an information need by locating, evaluating, and effectively using information.

## PHY 103 CORE COMPETENCIES

This course focuses on two of RCSJ's Core Competencies:

- Scientific Knowledge and Reasoning
- Quantitative Knowledge and Skills

## Student Learning Outcomes: GENERAL PHYSICS I

Successful completion of PHY 103 will help students:	RCSJ Core Competencies	Evaluation / Assessment (Additional means of evaluation may be included by individual instructors)
Define and differentiate between cinematic quantities: speed, average velocity, instantaneous velocity and acceleration.	Scientific Knowledge and Reasoning Quantitative Knowledge and Skills	Assignments, Quizzes, and Exams
Define and apply the five equations for uniform accelerated motion and be able to utilize these equations to solve for the unknown parameter.	Scientific Knowledge and Reasoning Quantitative Knowledge and Skills	Assignments, Quizzes, and Exams
Apply the for uniform accelerated motion and be able to utilize these equations to solve for the unknown parameter for two dimensional motion (projectile motion).	Scientific Knowledge and Reasoning Quantitative Knowledge and Skills	Assignments, Quizzes, and Exams
Explain and apply Newton's Laws of Motion.	Scientific Knowledge and Reasoning Quantitative Knowledge and Skills	Assignments, Quizzes, and Exams
Define and differentiate between mass and weight.	Scientific Knowledge and Reasoning Quantitative Knowledge and Skills	Assignments, Quizzes, and Exams
Define and apply work and energy and the principle of conservation of mechanical energy.	Scientific Knowledge and Reasoning Quantitative Knowledge and Skills	Assignments, Quizzes, and Exams
Explain and apply the impulse, momentum and the principle of conservation of momentum (elastic and inelastic collisions).	Scientific Knowledge and Reasoning Quantitative Knowledge and Skills	Assignments, Quizzes, and Exams
Apply the equations for centripetal force and centripetal acceleration.	Scientific Knowledge and Reasoning Quantitative Knowledge and Skills	Assignments, Quizzes, and Exams
Measure various physical quantities in a laboratory setting.	Scientific Knowledge and Reasoning Quantitative Knowledge and Skills	Assignments, Quizzes, and Exams
Solve for the unknown parameter for a system in translational and rotational equilibrium.	Scientific Knowledge and Reasoning Quantitative Knowledge and Skills	Assignments, Quizzes, and Exams
Define the variables and apply the equations for density.	Scientific Knowledge and Reasoning Quantitative Knowledge and Skills	Assignments, Quizzes, and Exams
Define the variables and apply the equations of elasticity and Hooke's Law.	Scientific Knowledge and Reasoning Quantitative Knowledge and Skills	Assignments, Quizzes, and Exams
Define and apply fluid statics and dynamics principles and equations.	Scientific Knowledge and Reasoning Quantitative Knowledge and Skills	Assignments, Quizzes, and Exams

## Topical Outline

Lecture topics	Labs
Motion in One Dimension	Motion on an Incline
Vectors and 2-D Motion	Force Tables and Vectors
Vectors in 2-D Motion	Projectile Motion
Laws of Motion	Newton's 2 <sup>nd</sup> Law
	Friction
Work and Energy	Conservation of Energy
	Spring Force
Momentum and Collisions	Momentum
	Ballistic Pendulum
Circular Motion and the Law of Gravity	Centripetal Force
Rotational Equilibrium and Dynamics	Rotational Equilibrium
Solids and Fluids	Density of Materials

### Affirmative Action Statement

The Board of Trustees is committed to providing a work and academic environment that maintains and promotes affirmative action and equal opportunity for all employees and students without discrimination on the basis of certain enumerated and protected categories. These categories are race, creed (religion), color, national origin, nationality, ancestry, age, sex (including pregnancy and sexual harassment), marital status, domestic partnership or civil union status, affectional or sexual orientation, gender identity or expression, atypical hereditary cellular or blood trait, genetic information, liability for military service, or mental or physical disability, including AIDS and HIV related illnesses.

For questions concerning discrimination, contact Almarie J. Jones, Special Assistant to the President, Diversity and Equity/Title IX and Compliance, 856-415-2154 or [ajones@rcsj.edu](mailto:ajones@rcsj.edu) or (Cumberland) Nathaniel Alridge, Jr., JD, Director, Diversity and Equity/Title IX and Judicial Affairs, 856-691-8600, ext. 1414 or [nalridge@rcsj.edu](mailto:nalridge@rcsj.edu). For disability issues or any barriers in the learning or physical environment related to a document condition/disability please contact: Gloucester campus – Dennis M. Cook, Director, Department of Special Services, ADA/504 Officer at 856-415-2265 or [dcook@rcsj.edu](mailto:dcook@rcsj.edu); or Cumberland Campus – Meredith Vicente, Senior Director, Physical & Learning Disabilities, Center for Academic & Student Success (CASS) at 856-691-6900 ext. 1282 or [mvicent1@rcsj.edu](mailto:mvicent1@rcsj.edu)

### Department of Special Services

The Department of Special Services is located in the Instructional Center, room 425A. The Special Services Department is committed to providing support services and ensuring equal access to eligible students with documented disabilities as outlined by the Americans with Disabilities Act (ADA) and the Americans with Disabilities Act with Amendments. If you are an eligible student with a documented disability please visit our website at [RCSJ.edu/SpecialServices](http://RCSJ.edu/SpecialServices) or call the office at 856-415-2265 or 856-415-2247 to speak to the Assistant Director Carol Weinhardt, [cweinhar@rcsj.edu](mailto:cweinhar@rcsj.edu)

## Reporting Allegations of Sexual Assault and Resource Referrals (8/2020) Gloucester Campus

There are multiple safe places for students to report allegations of sexual assault, both on and off campus. Reports of sexual assault can be made to any of the following offices listed in the chart below.

All students are encouraged to report alleged crimes on campus. Crimes that pose a threat to the campus community must be reported to 9-1-1, Security, the Sheriff's Office or the Deptford Township Police Department. All employees, including Security staff, must report incidents of discrimination, harassment or sexual misconduct to the Title IX Officer.

Service	Resource	Phone Number/Location/Website
<b>Non-Confidential Reporting</b>  Local Law Enforcement	Gloucester County Sheriff's Office Deptford Township Police Dept. Gloucester Co. Prosecutor's Office Sexual Assault Response Team	856-681-2200 856-845-2220 856-384-5500 856-384-5555
<b>Non-Confidential Reporting 9-1-1 and Campus Security</b>	9-1-1 Gloucester County Emergency Management Dispatch  Campus Security <b>Blue Light Emergency Phones OR ext. 4444 from any campus desk phone</b>	9-1-1 or push <b>RED</b> button on Campus <b>Blue Light</b> Emergency Phones  856-681-6287
<b>Non-Confidential On-Campus Reporting Support Services</b>	Almarie J. Jones Special Assistant to the President <b>Diversity and Equity/Title IX and Compliance</b>  John F. Ryder Director <b>Student and Veteran Affairs</b>	856-415-2154 College Center, Room 116 <a href="mailto:ajones@rcsj.edu">ajones@rcsj.edu</a>  856-468-5000, ext. 6456 College Center, room 202 <a href="mailto:jryder@rcsj.edu">jryder@rcsj.edu</a>
<b>Confidential On-Campus Counseling and Support Services</b>	Lois Y. Lawson-Bridgell, Ph.D. MSW, LSW, Director <b>Counseling &amp; Wellness Services Center</b>  William Leonard, Ph.D. <b>Intervention Teams Consultant</b>  Crystal Noboa, LSW, MSW Director, The Center for <b>People in Transition (PIT)</b>  Diane Mussoline, EdS, LMFT <b>Director of Behavioral Services</b>	856-464-5236 <a href="mailto:llawsonb@rcsj.edu">llawsonb@rcsj.edu</a> College Center, Room 206  <a href="tel:856-415-2119">856-415-2119</a> <a href="mailto:wleonard@rcsj.edu">wleonard@rcsj.edu</a> <a href="#">College Center, STEM Office C-168</a>  856-415-2264 <a href="mailto:cnoboa@rcsj.edu">cnoboa@rcsj.edu</a> Workforce Development Bldg., room 809  856-494-5665 <a href="mailto:dmussoli@rcsj.edu">dmussoli@rcsj.edu</a> College Center, Room 200A
<b>Confidential Off-Campus Full-Service Support</b>	<b>Center for Family Services/ Services Empowering Rights of Victims (SERV)</b>	1-866-295-7378 Camden and Gloucester counties <a href="http://centerffs.org/serv">centerffs.org/serv</a>
<b>Hospitals with Sexual Assault Nurse Examiners</b>	<b>Inspira Medical Center</b>  <b>Jefferson Washington Township Hospital</b>	700 Mullica Hill Rd. Mullica Hill, NJ · 856-508-1000  435 Hurffville-Crosskeys Rd., Turnersville, NJ · 856-582-2500