

# TATIANA STANTCHEVA

## PHYSICS 101

### Course Materials

#### Mechanics 1

L2. [Newton's First Law](#)  
 L3. [Motion](#)  
 L4. [Newton's Second Law](#)  
 L5. [Newton's Third Law](#)

B1. Lab Safety  
 B2. [Force Table](#)  
 B3. Force Table: Drawing to Scale  
 B4. [Acceleration](#)

**Test 1: Motion, Newton's Laws**

RP1. Newton's First Law

#### Mechanics 2

L6. [Linear Momentum](#)  
 L7. [Energy](#)  
 L8. [Rotation](#)

B5. [Elastic Collisions](#)  
 B6. [Inelastic Collisions](#)  
 B7. [Torque](#)

**Test 2: Momentum, Energy, Rotation**

RP2. Newton's Third Law

#### Matter

L9. [Matter](#)  
 L10. [Solids](#)  
 L11. [Liquids](#)  
 L12. [Liquids 2](#)

B8. [Density](#)  
 B9. [Springs](#)  
 B10. [Buoyancy](#)

**Test 3: Matter, Solids, Liquids**

RP3. Propulsion

#### Heat

L13. [Temperature](#)  
 L14. [Heat](#)  
 L15. [Thermodynamics](#)

B11. [Boyle's Law](#)  
 B12. [Specific Heat](#)  
 BA. Lab Write-up

**Test 4: Temperature and Heat**

RP4. The Martian

#### Vibrations and Waves

L16. [Vibrations](#)  
 L17. [Waves](#)  
 L18. [Sound](#)

B13. Springs II  
 B14. [Standing Waves](#)  
 B15. [Simple Pendulum](#)

**Test 5: Vibrations, Waves, Sound**

#### Optional

L. [Gravitation](#)

B. [Measuring g](#)

## TATIANA STANTCHEVA

# PHY 101 OUTLINE

### Course Description and Purpose

This is the first part of the two-semester [Introduction to Physics I](#) taught at [NOVA](#).

Surveys general principles of physics. Includes topics such as force and motion, energy, heat, sound, light, electricity and magnetism, and modern physics. Part I of II.

Lecture 3 hours. Laboratory 3 hours. Total 6 hours per week.

4 credits.

A college level course intended for students with non-technical majors who need a lab science. Students will gain an understanding of the physical principles involved in their everyday environment. The course will serve as an alternative physics course for those students having little or no algebra math skills.

**Prerequisites** Satisfactory placement score for [ENG 111](#).

**Note:** Students are expected to have some basic algebra and arithmetic skills at the level of Developmental Math MTT 3.

### Additional Requirements

- Access to a computer with fast internet connection.
- Working knowledge of some form of Editing Software, such as Microsoft Office, Open Office, Google Documents, etc.
- Knowledge of how to use a basic calculator. Graphing calculators are not required.
- In the event of emergencies, students may be required to participate in virtual classes through [Blackboard Collaborate](#).

## Course Objectives and Learning Outcomes

- [Course Content Summary and Objectives](#) as published on the NVCC web site.
- Upon completion of the course, students should be able to:
  - Discuss and analyze qualitatively a variety of problems and situations they encounter in their professional, personal, and educational activities.
  - Apply critical thinking to their respective occupational field and day-to-day life.
  - Use and manipulate formulae that relate to physical phenomena.
  - Collect and record experimental data and obtain meaningful results.
  - Communicate effectively on course related issues.

## Textbooks

- [Conceptual Physics](#), Paul Hewitt, 12 Ed.

## Laboratory Safety Rules

- Only students officially enrolled in the class are allowed in the physics laboratory.
- Open-toe shoes such as sandals and flip-flops are prohibited in the laboratory. All shoes must provide adequate foot protection.
- All students must be acquainted and abide by the safety rules as published on [the Physics Laboratory Webpage](#).
- Students in violation of the safety rules will be asked to leave the laboratory.

## Course Organization and Policies

- **Assignments, Grading, and Make-up Policy**
  - The course grade is comprised of labs and lab assignments, weekly homework, class tests and a final exam. For more details, contact directly the course instructor.
  - Grading Scale: A: 90-100% B: 80-89% C: 70-79% D: 60-69% F: <60%
  - One lab will be dropped from the lab grade.
  - The lowest test score will be dropped from the exam grade.
  - No lab or test make-ups are allowed.
- **Attendance**
  - Students are expected to attend all scheduled classes. If an online meeting is scheduled, due to an emergency or other reason, student participation in those meetings counts towards their attendance
  - Students are responsible to know all the material covered in class regardless of whether they have attended class or not.
- **Withdrawal/Incomplete/Audit**

- Last day to drop the class with Tuition Refund is [Census Date](#). No Audit will be permitted after the [Census Date](#). Students who have not attended class by the [Census Date](#) will be administratively withdrawn from the class.
- No withdrawals will be permitted after [the Last Day to Withdraw Without Grade Penalty](#). Students are responsible for withdrawing themselves from the class.
- Incomplete Grade may be given only to students who have earned already 70% of the class grade and have documented special circumstances that preclude them from finishing the class in time. In such cases, they must complete the class by the end of the following semester, or their grade will automatically revert to the earned grade.
- **Academic Dishonesty** Students are expected to abide by the [College's Rules on Academic Dishonesty](#). Be advised that:
  - Cheating will not be tolerated in any form. Copying and using someone else's work to obtain credit, as well as letting someone else copy your work, is considered cheating. Any cheating incident will be reported to the Dean of Students and may then become part of your official student record.
  - Cheating on any assignment will result in failing that assignment. A second instance of cheating will result in automatic failing of the class!
  - All assignments are individual unless otherwise specified.
  - The use of unauthorized electronic devices during an exam is considered cheating.
  - Students who show a discrepancy greater than a full letter grade between their performance on two separate class assignments (in-class or outside class), may be required to take an additional exam. In that case, the instructor will decide how the additional exam grade will be factored into the overall course grade.
- **Disability Accommodations** No disability accommodations will be provided unless a Disability Data Sheet is provided to the instructor. Those seeking accommodations based on disabilities should obtain a Disability Data Sheet through [the Counselor for Special Needs](#).
- **Classroom Etiquette**
  - Please express yourself freely during class discussions; however, always be respectful and polite to your fellow classmates. Address your instructor by their last name.
  - Smart phones and other communications devices have no place in a college classroom. During class, students may not use cell phones and other electronics devices except for direct and immediate classwork.
  - In their emails, posts and any other form of electronic communication, students are expected to address their recipient properly and courteously, include the course title and number in the subject line, and to sign their full name at the end of their message.

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## TATIANA STANTCHEVA

# PHY 101 GRADING

## Grading Policies

**Grading Scale:** A: 90% or above; B: 80 – 89%; C: 70-79%; D: 60- 69%

**Course Grade** Total of 100 points.

The course grade is comprised of Laboratory (15%), Homework (15%), Exams (60%), and Projects (10%).

**Lab Grade** Total 15 pts.

All lab experiments are worth 1 pt each. Students who are late for lab by more than 15 minutes, may still do the lab but will receive no credit for that experiment.

For students who have missed a lab, there will be one extra lab experiment assigned at the end of the semester to make up for any missed lab work. There will be no other lab make-ups.

**Homework** Total 15 pts.

The homework will be in the form of weekly online quizzes due 11:59 pm on the night before we meet in class. Each quiz problem is worth 0.25 pts towards the total homework grade up to a total of 15 pts. Students should make effort to do the homework on a regular basis as the homework reflects the material covered in class and is the best practice for the exams.

No late quizzes will be accepted. For students who have missed a quiz or problems on a quiz, there will be approximately 15 – 20 extra quiz problems already incorporated in the regular quizzes to make up for the missed grade.

**Exams Total 60 pts.**

There will be five exams each worth 15 pts. The lowest grade exam will be dropped from the course grade. The remaining four exam grades will count towards the total exam grade. The exams will be a mix of multiple choice and essay questions and will reflect the work done in class, both in laboratory and lecture, and the homework problems.

A formula sheet will be provided by the instructor on exam day.

There will be no make-up exams, regardless of the circumstances.

If a student knows in advance that he or she will have to miss an exam, an arrangement may be made with the instructor for the exam to be taken *in advance*.

**Projects Total 10 pts.**

The instructor will assign various individual or collaborative student projects throughout the semester. More details will be given as the course progresses.

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## TATIANA STANTCHEVA

## PHY 101 SCHEDULE

## Fall 2016

WEEK	QUIZZES	MONDAY (LAB)	WEDNESDAY (LECTURE)
1. Aug. 22 - Aug. 27		Ch. 1 Introduction Ch. 2 <a href="#">Newton's First Law</a>	Ch. 3 <a href="#">Linear Motion</a> B. Safety
2. Aug. 29 - Sep. 3	Q. Newton's First Law	L. <a href="#">Newton's Second Law</a>	B. Force Table
3. (C) Sep. 5 - 12	Q. Linear Motion	No Classes	L4. Newton's Second Law B. <a href="#">Acceleration</a>
4. Sep. 12 - 19	Q. Newton Second Law	L. Newton's Third Law Review	<b>Test 1</b> L. <a href="#">Energy</a>
5. Sep. 19 - 24	Q. Energy	B. <a href="#">Elastic Collisions</a>	L. <a href="#">Linear Momentum</a>
6. Sep. 26 - Oct. 1	Q. Momentum	B. <a href="#">Inelastic Collisions</a>	L. <a href="#">Rotation</a>
7. Oct. 3 - 8	Q. Rotation	B. <a href="#">Torque</a>	<b>Test 2</b> L. <a href="#">Matter</a>
8. Oct. 10 - 15	Q. Matter	No Classes	L. <a href="#">Solids</a> L. <a href="#">Liquids 1</a>
9. Oct. 17 - 22	Q. Solids	L. <a href="#">Liquids 2</a> B. <a href="#">Buoyancy</a>	L. <a href="#">Temperature</a> L. <a href="#">Heat</a>
10. Oct. 24 - 29	Q. Liquids Q. Temperature	B. <a href="#">Boyle's Law</a>	<b>Test 3</b>
11. Oct. 31, Nov. 2 W-Day Tue Nov. 5	Q. Temperature		L. <a href="#">Thermodynamics</a>
12. Nov. 7 - 12	Q. Heat	B. <a href="#">Specific Heat</a>	L. <a href="#">Vibrations</a>

WEEK	QUIZZES	MONDAY (LAB)	WEDNESDAY (LECTURE)
13. Nov. 14 - 19	Q. Vibrations	B. Springs II Review	<a href="#">Test 4</a>
Nov. 21 - 26 Thanksgiving	BA. Lab Write-up	<a href="#">Waves</a>	<b>Thanksgiving</b>
14. Nov. 28 - Dec. 3	RP. The Martian Q. Waves	B. <a href="#">Standing Waves</a>	L. <a href="#">Sound</a> L. Music
15. Dec. 5 - 10	Q. Sound	B. <a href="#">Simple Pendulum</a>	Review
Finals Week Dec. 11 - 17		<a href="#">Test 5</a>	

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