**IB Physics SL (Year One) Course Syllabus**

**2013-2014**

**Teacher Information**

Name: Ms. Tiffany Grant Room Number: 8157

Email: grantt@atlantapublicschools.us Phone: (404) 802-4700

Website: [http://msgrantsphysics.weebly.com](http://msgrantsphysics.weebly.com/) Tutorial Day: Monday, 3:40-4:40 pm

**Course Description and Objectives**

IB Physics Standard Level is a two–year introductory university level course designed to integrate hands on learning with rigorous science content. It is a challenging and exciting course that engages students to explain the basic features of the natural universe, primarily the interactions between matter and energy, in mathematical terms.  In IB Diploma Program Physics Standard Level, students will develop a broad, general understanding of mechanics, sound, light, electricity, magnetism and modern physics. The IB requires multiple forms of assessments, the independent lab component, Internal Assessment, the personal skills component, Group IV project, and exam component, the External Assessment papers.  Students will be expected to submit independently designed and conducted lab work that will fulfill the IB Internal Assessment criteria.  During the second year, all students will complete the Group IV project and prepare and sit for three exams, International Baccalaureate Physics Papers, at the end of the second semester.

This physics course is designed to provide the individual opportunities to experience science as a discipline and method of investigation through a combination of study, discussion, problem solving, and hands-on laboratory observation. By the end of the semester you will be able to demonstrate skills necessary to recognize problems, gather quantitative data, efficiently solve problems and explain concepts, and communicate your results and solutions. Open-ended questions are stressed in order to assess students’ understanding of physical concepts, and the use of mathematics to illuminate the physical situation rather than to show manipulative abilities.

**Course Outline**

|  |  |  |  |
| --- | --- | --- | --- |
| *Year One (2013-2014)* |  | *Year Two (2014-2015)* |  |
| Unit Topics: | Hours: | Unit Topics: | Hours: |
| Physics and Physical Measurement | 5 | Electric Currents | 7 |
| Mechanics | 17 | Field and Forces | 7 |
| Thermal Physics | 7 | Atomic and Nuclear Physics | 9 |
| Oscillations and Waves | 10 | Quantum and Nuclear Physics | 15 |
| Sight and Wave Phenomena | 15 | Energy, Power, and Climate | 18 |

|  |  |
| --- | --- |
| Deficiency Notices | Report Card |
| September 10, 2013 | October 17, 2013 |
| November 13, 2013 | January 10, 2014 |
| February 7, 2014 | March 21, 2014 |
| April 23, 2014 | June 3, 2014 |

**Materials:**

Students are required to bring the following to every class:

1. Textbook: Physics: Principles and Problems (Glencoe Science)
2. 3-ring binder with 5 dividers

(Important Documents, Notes & Classwork, Labs, Quizzes, IB Exam Prep)

1. Loose-leaf paper and Graph paper

Other recommended materials:

Portable pencil sharpener, colored pencils, ruler, erasers.

1. Pencils and Pens
2. Composition book (graph ruled)
3. Calculator (preferably TI-83, TI-84, or TI-89)

**Evaluation and Grading**

Grades will be assigned based on the following breakdown:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Grading Categories: |  |  | Grading Scale: |  |  |
| Tests | 30% |  | A = 90 – 100 |  |  |
| Labs | 20% |  | B = 89 – 80 |  |
| Quizzes | 15% |  | C = 79 – 70 |  |
| Classwork/Homework | 15% |  | F = 69 or below |  |
| Midterm Exam | 10% |  |  |  |
| Final Exam | 10% |  |  |  |
| Total | 100% |  |  |  |

*You will receive additional information about IB Grading for this class.*

* Tests will follow the IB Paper 1 and Paper 2 formats. Each test will have several multiple-choice questions and graded using a scantron. **No calculators** will be permitted on the multiple-choice sections of the test. The second part of each test will be free-response questions (data-based, short-answer, and extended-response) with rubrics. Points will be awarded for use of correct formulas and showing work as well as appropriate conceptual comments.
* **All lab reports** are due **one week** from the date of actual completion of lab.

Late Work

All assignments not submitted on the requested due date and time are **late**. The acceptance late assignments will be at the discretion of Ms. Grant. If accepted, the grades of these assignments **will receive a late penalty** according to the discretion of Ms. Grant.

Make-up Work

Make-up work (test, lab, classwork) because of an **excused absence** must be made up **during tutorial** (Monday from 3:40-4:40 pm or by appointment) within one week of absence. It is **your responsibility** to ask for and obtain the make-up work. Students who are absent on the day of a unit test or quiz must take the test or quiz the day they return, no exceptions!

**Class Expectations**

Class Rules:

1. Arrive to class on-time
2. Be prepared with your homework and class materials
3. No candy, gum, food, or drink (except water)
4. No electronic devices (iPods, MP3 players, cell phones, etc)
5. Be respectful of yourself, your peers, your teachers, and classroom visitors
6. Work hard and Exceed Expectations!

(**Note**: All students are expected to adhere to all policies and procedures as mandated by North Atlanta High School and Atlanta Public Schools 2013-2014 Student Handbook.)

Consequences:

1st Offense: Verbal Warning

2nd Offense: Student-Teacher Conference

3rd Offense: Teacher Consequence (Detention) and Parent Contact

4th Offense: Office Referral

(**Note**: Severity of an offense may expedite this process.)

**Note:** Ms. Grant reserves the right to make changes to this course syllabus as needed, in which appropriate notification of changes will be made.

**IB Physics SL Course Pacing Schedule (Fall 2013)**

|  |  |  |
| --- | --- | --- |
| ***Lesson #*** | ***Lesson Topic*** | ***Required Reading*** |
|  | First Day Procedures and Course Outline |  |
| **Topic 1: Physics and Physical Measurement (3 weeks)** | | |
| Lesson 1 | The Realm of Physics | 1.1 |
| Lesson 2 | Measurement and Uncertainty | 1.2-1.3 |
| Lesson 3 | Vector and Scalars | 5.1 |
| **Topic 2: Mechanics (7 weeks)** | | |
| Lesson 1 | Kinematics | 2.1-2.4, 3.1-3.3 |
| Lesson 2 | Forces and Dynamics | 4.1-4.3, 5.2-5.3, 9.1-9.2 |
| Lesson 3 | Uniform Circular Motion | 6.2 |
| Lesson 4 | Gravitational Force and Field | 7.1-7.2 |
| Lesson 5 | Work, Energy, Power | 10.1, 11.1-11.2 |
| **Topic 3: Thermal Physics (4 weeks)** | | |
| Lesson 1 | Thermal Concepts | 12.1-12.2 |
| Lesson 2 | Thermal Properties of Matter | 13.1-13.4 |

**IB Physics SL Course Pacing Schedule (Spring 2014)**

|  |  |  |
| --- | --- | --- |
| ***Lesson #*** | ***Lesson Topic*** | ***Required Reading*** |
|  | First Day Procedures and Course Outline |  |
| **Topic 4: Oscillations and Waves (6 weeks)** | | |
| Lesson 1 | Kinematics of Simple Harmonic Motion (SHM) | 14.1 |
| Lesson 2 | Energy Changes During Simple Harmonic Motion (SHM) | 14.1 |
| Lesson 3 | Forced Oscillations and Resonance | 14.1 |
| Lesson 4 | Wave Characteristics | 14.2 |
| Lesson 5 | Wave Properties | 14.3 |
| **Option A: Sight and Wave Phenomena (8 weeks)** | | |
| Lesson 1 | The Eye and Sight |  |
| Lesson 2 | Standing Waves | 14.3 |
| Lesson 3 | Doppler Effect | 15.1-15.2 |
| Lesson 4 | Diffraction | 16.1-16.2 |
| Lesson 5 | Resolution |  |
| Lesson 6 | Polarization | 16.2 |

**Parent-Student-Teacher Compact**

#### IB Physics SL

#### Ms. Tiffany Grant, Teacher

Dear Parents and Students,

Below are the expectations required for the success of each AP Physics B student. Please read each statement thoroughly and initial (both parent and student) in each of the provided spaces, which indicate you and your student’s agreement to uphold the following expectations.

|  |  |  |
| --- | --- | --- |
| Parent | Student | The student will: |
| \_\_\_\_\_ | \_\_\_\_\_ | 1. Regularly attend class. |
| \_\_\_\_\_ | \_\_\_\_\_ | 1. Arrive to class on-time. |
| \_\_\_\_\_ | \_\_\_\_\_ | 1. Complete assignments (classwork, homework, tests, projects, and quizzes). |
| \_\_\_\_\_ | \_\_\_\_\_ | 1. Complete all activities within the specified time. |
| \_\_\_\_\_ | \_\_\_\_\_ | 1. Participate in tutorials during the school week, if needed\*. |
| \_\_\_\_\_ | \_\_\_\_\_ | 1. Demonstrate mature behavior in the classroom\*\*. |
| \_\_\_\_\_ | \_\_\_\_\_ | 1. Come prepared for class\*. |
| \_\_\_\_\_ | \_\_\_\_\_ | 1. Take home regularly issued progress reports to parents/guardians and return signed to Ms. Grant. |
| \_\_\_\_\_ | \_\_\_\_\_ | 1. Spend at least 4 hours per week studying IB Physics SL. |
| \_\_\_\_\_ | \_\_\_\_\_ | 1. Schedule conferences with the teacher when necessary. |
|  |  | \* See IB Physics SL Course Syllabus  \*\* See NAHS Student Handbook |

I have read and fully understand the policies and procedures written in the IB Physics SL Course Syllabus and Parent-Student-Teacher Compact. I will follow each guideline to the best of my ability. Please sign below and return this contract on or before **Wednesday, August 14, 2013.**

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Student's Name (printed) Date

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Student's Signature Date

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Parent/Guardian's Signature Date

**Parent/Guardian Contact Information**

Please provide me with the following information so I can communicate with you this year.

|  |  |  |
| --- | --- | --- |
| Guardian Name: | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | Relation to student: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| Home Phone #: | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | Best Method of Communication (Circle all that apply): |
| Work Phone #: | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | Home Phone Work Phone |
| Cell Phone #: | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | Cell Phone Email |
| Email Address: | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | Best Time (Circle all that apply): AM PM |