# Brief Description of Electives Courses

**May 7, 2009**

<table>
<thead>
<tr>
<th>Course</th>
<th>Instructor</th>
<th>Description</th>
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| **1. AP BIOLOGY** | Ms. Yen-ching Lin | AP Biology is equivalent of a one-semester college course in introductory Biology. The AP Biology course is designed to be taken by students after the successful completion of a first course in high school biology. It aims to provide students with the conceptual framework, factual knowledge, and analytical skills necessary to deal critically with the rapidly changing science of biology. **Requirements**
Grade 10-12 students have completion of Biology with a 90 average scores or better. **Textbook**
Neil Campbell, *Biology*, 7th Ed
ISBN # 0-8053-7171-0. AP Biology should include the topics regularly covered in a college biology course for majors. The textbooks used for AP Biology should be those used by college biology majors and the labs done by AP students must be the equivalent of those done by college students. **Course Size** 24 students **Course Hours** per week 6 periods **Course Length** 1 Year **Credit** 1 |
| **2. AP CHEMISTRY** | Mr. Peter Alden | Chemistry is a branch of science that concerns the study of matter from an atomic or molecular level. An understanding of Chemistry can help foster practical developments in medicine, industrial materials, food production and microelectronics. A one-year AP Chemistry course covers the material consistent with a one-year introductory Chemistry course in college. If the student successfully completes the course and subsequent AP level examination, he or she may earn college credit depending on the school he/she chooses. **Requirements**
Successful completion of Grade 10 Chemistry with an 85% average or better. **Textbook**
Zumdahl, Steven S. *Chemistry* 6th edition, Houghton Mifflin Co. Boston **Class Size** 25 **Hours per week** 6 **Course Length** 1 Year **Credit** 1 |
| **3. AP Computer Science** | Mr. Spock Tsai | As a computer science major, programming courses will be a key part of your studies. These classes cover languages such as C++ and Java, and introduce you to the precise thinking behind computer programming. You'll learn how to solve problems by translating a question into instructions a computer can follow to come up with the answers. And you'll explore what goes on inside a computer when it's solving a problem. Students who might major in electrical engineering area in college should take this course in advance. **Course Requirement**
Interview with the teacher after AP course introduction. **Class Size** Less than 15 people. **Textbook** **Hours per week** 4 **Course Length** 1 Year **Credit** 1 |
4. CREATIVE WRITING  Ms. Tessa Wright
Course Description
Whether you have some experience with the craft or you are a novice, this course will help you
develop as a writer. We will cover elements of the creative process, such as developing your
voice, writing dialogue and creating characters. While our focus will be the short story, we will
explore different genres and forms, including crime fiction, science fiction, romance and poetry.
The course will give you time to work on independent and collaborative writing projects, and
there will be opportunities to receive helpful feedback. If you already have some stories or
poems to share, some drafts or ideas to work with, or you are still looking for inspiration, this is
the course for you.
Class Size 25  Hours per week 2  Course Length 1 Year  Credit 0.5

5. AP ECONOMICS  Mr. Nathan Bryan
Course Description
- Microeconomics Principles for Semester I.
- Macroeconomics Principles for Semester II.
Requirements
Grade 10-12 only.
Prerequisite and/or preparation for the course:
All students need to have the permission of the instructor to enter the class.
Textbook Baumol & Blinder, Edition: 9th
Class Size 25  Hours per week 4  Course Length 1 Year  Credit 1

6. AP ENVIRONMENTAL SCIENCE  Dr. Ray Chin 金仁初
Course Description
The goal of the AP Environmental Science course is to provide students with the scientific principles,
concepts, and methodologies required to understand the interrelationships of the natural world, to identify
and analyze environmental problems both natural and human-made, to evaluate relative risks associated
with these problems, and to examine alternative solutions for resolving and/or preventing them.
Requirements
The AP Environmental Science course is an excellent option for any interested student who has
completed two years of high school laboratory science—one year of life science and one year of physical
science (for example, a year of biology and a year of chemistry). Due to the quantitative analysis that is
required in the course, students should also have taken at least one year of algebra. Also desirable (but
not necessary) is a course in earth science. Because of the prerequisites, AP Environmental Science will
usually be taken in either the junior or senior year.
Textbook Cunningham, William P., Cunningham, Mary P., The Principal of
ISBN 0072509317
Class Size 25  Course Length 1 year  Hours per week 4  Credit 1
### 7. AP EUROPEAN HISTORY
Ms. Elizabeth Wyant

**Course Description**
This is a survey course that covers the development of Modern Europe from 1450 to the present. It encompasses art, literature, and society as well as political history. The countries emphasized include Spain, Italy, France, Portugal, Great Britain, the Netherlands, Belgium, Germany, Austria, and Russia.

**Prerequisite:** Good grades in other history courses, as well as interest and high reading and writing skills.

### 8. AP Art History Course Description:
Ms. Elizabeth Wyant

This is a history of the visual arts in Europe from Ancient Greece and Rome to the present. It involves the visual recognition of art styles and techniques, as well as some coverage of the social and political context of the art. It does not require artistic skills as an artist-rather it is a cultural history.

**Prerequisite:** Good grades in other history courses, as well as interest and high reading and writing skills.

### 9. AP PSYCHOLOGY  
Ms. Alison Kay

**Course Description**
Psychology is the scientific study of thinking and behavior. The course addresses issues surrounding learning and memory, personality, mental analysis, and an ongoing look at why we behave the way we do? Students are offered an after school tutorial for the AP Psychology Exam.

**Requirements**
Students wishing to enter the course must first read a brief Psychology article and answer questions based on the reading. The article will be from “Psychology Today” or one of the journals for Psychology. Students need to show an ability to handle the discipline’s terms. Also, students should have a genuine interest in the study at human behavior, the brain, and mind.

**Textbook:** Introduction to Psychology, ISBN 61227-X

**Class Size:** 25  
**Hours per week:** 5

### 10. AP STATISTICS  
Mr. Henry Chen 陳志恆

**Course Description**
In this course, you will learn to collect and summarize data, master basic probability theories, and use them to infer about population. Statistics is a fantastic tool for you to devour films, music, books, paintings, poems, photographs, conversations, dreams, trees, architecture, street signs, clouds, light, and shadow. You will make better sense out of data to fuel your imagination in every field. The entire course encourages innovation and technology, with an emphasis on TI-83 and TI-89 (preferred) graphing calculators. It also prepares you for the AP Statistics Exam in May. Students who pass the exam may receive college credits.

**Requirements**
1. Completion of Algebra II.

**Textbook**

**Class Size**  
**Hours per week:** 4  
**Course Length:** 1 Year  
**Credit:** 1
11. **AP Physics B**  
**Mr. Jay Shumway**  

**Course Description**  
AP Physics B is a college level general Physics course. While calculus skills are not required, algebra, trigonometry, and graphical analysis are used. Topics include 1- and 2-dimensional motion; momentum, impulse, and collisions; energy and conservation of energy; simple harmonic motion; uniform circular motion; fluids; orbital dynamics; electrostatics; electromagnetic induction; thermodynamics; optics; the wave-particle duality; relativity and modern physics; and nuclear physics. Grades are computed from homework, labs, and test. Labs are an important part of AP Physics, and in physics B, students have the opportunity to develop their own labs as well as to perform labs provided by the teacher. Because of the range of topics, AP B is the right choice for students who will be majoring in any form of engineering besides Electrical Engineering, or any pure science besides Physics. It is also a good choice for any student who wants a solid basis for more advanced studies in any of the Physical Sciences in college.  

**Prerequisite and/or preparation for the course:**  
Students enrolling in AP Physics will already have had 11th grade General Physics and appropriate math course. The most important thing that students can bring to Physics B is the expectation that they will work hard and lean a lot. Because my students work hard, they do well on the AP test: in 2005-06, all but one student scored 3 or above, with almost 50% score 4 or 5; based on the performance on released tests and feedback from the free-response section of this year’s test, I expect mostly 4s and 5s. Because of the rapid pace of the course, please do not enroll if your average in 11th grade Physics is below a B.

12. **AP Physics C**  
**Mr. Ray Chin**  

**Course Description**  
This course paves a strong foundation for future engineering and science studies in college. You will learn to build mathematical models out of physics with the calculus and differential equations. These math skills are valuable because you can easily apply them to other fields such as biology and economics. Some laboratory work is used to enhance your physics concept and appreciation of the true complexity of real life. This course also prepares you for both the AP Physics C Mechanics and electricity & Magnetism Exams in May. Students who pass the exams may receive college credits.  

**Course Requirement**  
Completion of Calculus or will take it concurrently.  

**Class Size**  

**Textbook**  

**Hours per week 5  Course Length 1 Year  Credit 1**

13. **AP U.S. History**  
**Mr. John Liu**  

**Course Description**  
The AP program in United States History is designed to provide students with the analytical skills and factual knowledge necessary to deal critically with the problems and significant event comprising the history of that nation. The program prepares students for intermediate and advanced college courses by placing demands upon them equivalent to those by full-year introductory college courses. Successful students will learn to assess historical materials—their relevance to a given interpretative problem, their reliability, and their importance—and to weigh the evidence and interpretations presented in historical scholarship. Success in an AP United States History course will thus develop the skills necessary to arrive at conclusions on the basis of an informed judgment and to present reasons and evidence clearly and persuasively in essay format.  

**Course Requirements**  
1. Concurrent Enrollment in Mr. Lillard’s American Government and Politics class during the senior year.
2. Recommendation by the student’s tenth grade social studies instructions or, in the case of students new to NEHS, acceptance by the instructor after personal interview and review of student’s past academic performance by NEHS.

- New, not used, Norton et al.

Class Size 25 Hours per week 5 Course Length 1 Year Credit 1

14. AP Calculus (including AB and BC)
Teacher: Ms. Christine Huang, Hours per week: 5

I. Teaching Strategies

Mathematics reveals the beauty of orders of the real world and calculus is especially one of the typical examples. Leibniz and Newton are generally recognized as ‘co-inventors’ of calculus. By means of their view, a compact and logical world is conducted in front of you. A textbook and instructors do not make a course; the students do. The textbook and teachers are the resources to support your course. With this mind, asking good questions and participating group discussion are strongly encouraged in the class. Welcome to the world of calculus!

II. Students’ Evaluation

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<tbody>
<tr>
<td>Class Performance/Group Discussion)</td>
<td>10</td>
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<tr>
<td>Homework</td>
<td>20</td>
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<tr>
<td>Quizzes</td>
<td>20</td>
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<td>Tests</td>
<td>20</td>
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<tr>
<td>Midterm and Finals (School Policy)</td>
<td>30</td>
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<tr>
<td>Total</td>
<td>100</td>
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III. Graphing Calculator

Each student is required to bring a graphing calculator to the AP Calculus class. Different models of calculators vary in their features and capacities; however, there are four procedures students must be able to perform on their calculator:

1. Produce the graph of a function within an arbitrary viewing window.
2. Solve an equation numerically.
3. Compute the derivative of a function numerically.
4. Compute the definite integral numerically.

We don’t use graphing calculator for many tests. Actually, the majority of the test
questions chosen can be answered by showing work with neat calculations rather than using a graphing calculator. Some practice questions which need a graphing calculator are chosen in each chapter for students to sharpen your skills and connect the concepts.

**IV. Course Description**

<table>
<thead>
<tr>
<th>In general</th>
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<tbody>
<tr>
<td>1. The topic outline shown below is the skeleton of our course. We study every area mentioned in the <em>AP Calculus Course Description</em>. We also include some other topics—Newton's Method, Simpson's Rule, hyperbolic functions, integration by trigonometric substitution, volume by cylindrical shells, work—to provide alternate methods of finding a solution, to give an additional look at how calculus zooms into a function to inspect what might be happening at a particular instant, or to put many small pieces of information together to reveal something about the whole function.</td>
</tr>
<tr>
<td>2. Each chapter opens with a real-world application designed to motivate students to take interest in the calculus concepts covered in the chapter. Following a brief introduction, open-ended questions guide students through an introduction to the main themes of the chapter.</td>
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**Course Planner**

<table>
<thead>
<tr>
<th>Primary Textbook</th>
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<tbody>
<tr>
<td>Larson Hostetler Edwards</td>
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<td><em>Calculus, Seventh Edition, Houghton Mifflin</em></td>
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**V. Review for AP Exams**

We use Barron's *How to Prepare for the AP Calculus* to review for the AP exam. The book consists of two parts:

1. The Topical Review and Practice includes 10 chapters. The first three chapters are assigned as winter vacation homework, while the other 7 chapters are matched with the schedule of the primary textbook.
2. Practice Examinations has four exams that simulate the actual AP exams. We use these four exams to help you get prepared for the AP exams. Also, 1998/2003 AP Calculus AB and BC Released Exams are the practice exams for you during the final week before the AP Exams.

**VI. Web Resources**


**Prerequisite and preparation for the course:**

1. Average 80 or above for Gr. 11 Honors Math, OR
2. Average 97 or above in Gr. 11 Regular Math, OR
3. Average 85 or above in Gr. 11 Regular Math with
   (a) Teacher's recommendation, and
   (b) Score 80 or above on Analytic Geometry Assessment Test, and
   (c) One month on probation

Summer vacation homework in Analytic Geometry.
15. AP English Literature and Composition  Ms. Ruth Poulsen  

**Course Description**

The course includes intensive study of representative works from various genres and periods, concentrating on works of recognized literary merit. Students read works from several genres and periods - from the sixteenth century to the twenty-first century - but more importantly, they get to know a few works well. A generic method for the approach to such close reading involves the following elements: the experience of literature, the interpretation of literature, and the evaluation of literature. Writings assignments focus on the critical analysis of literature and include expository, analytical, and argumentative essays. Writing instruction includes attention to developing and organizing ideas in a clear, coherent, and persuasive language. It includes study of the elements of style, and it attends to matters of precision and correctness as necessary. 

Prerequisite and/or preparation for the course: Passing a literary comprehension and literary essay test. “B” average in English from grades 9 through 11. Consent of the instructor. 

2008 summer reading of the following:

- *100 Years of Solitude* - Gabriel Garcia Marquez
- *Great Expectations* - Charles Dickens
- *Moby Dick* - Herman Melville
- *Mythology* - Edith Hamilton

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16. AP English Language and Composition  Ms. Tessa Wright  

**Course Description**

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- *Moby Dick* - Herman Melville
- *Mythology* - Edith Hamilton
From script to videos, NEHS Video Production is a fun, relatively comprehensive program that focuses on developing the fundamental skills for the beginning phases of an independent filmmaker. In places like Hollywood, film production is an intense, creatively demanding environment that tests your skills in every role on a film crew. In this class, you will be encouraged to embrace your own cultural backgrounds and discover your own unique voice as a “filmmaker.” To accomplish this you will undertake a wide range of projects that will allow you to experience a variety of positions in the filmmaking process. These positions include: 1. Producer 2. Director 3. Cinematographer 4. Screenwriter 5. Production Designer

By the end of this course, you will gain a set of creative skills that will help you prepare entertaining, commercially viable, and meaningful films.

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<thead>
<tr>
<th>Textbook</th>
<th>Hours per week</th>
<th>Credit</th>
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<tbody>
<tr>
<td>Class Size</td>
<td>5</td>
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</tr>
<tr>
<td>Course Length</td>
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