Instructor contact information and Office Hours:
Dr. David Black, School of Marine and Atmospheric Sciences, Discovery Hall, Room 157.
Phone: 631-632-8676; email: david.black@stonybrook.edu.
Office hours: By appointment (my schedule is very flexible to meet your needs).

Text: *The Thinking Person’s Guide to Climate Change*, Robert Henson. There are no specific readings for any given class as the textbook does not directly follow the lecture outline. However, please look at the book’s index for the appropriate lecture topic and read the relevant material in advance of the class.

Teaching assistant and Office Hours: TBA.

Course goals: We will explore current concerns about modern and future global climate change with emphasis on changes related greenhouse effect-warming in a format accessible to non-science majors. Topics include an introduction to the climate system, past climate variability and climate forcing mechanisms, climate change effects on a variety of ecosystems, extreme weather, and human dimensions of climate change. This course satisfies both the Category H component of the Diversified Education Curriculum (DEC) and Stony Brook Revised Curriculum category STAS. Not for major credit.

Specific outcomes of this course include:
- Understand the natural world and the major principles and concepts that form the basis of knowledge in the natural sciences.
- Assess scientific information and understand the application of scientific data, concepts, and models in the natural sciences.
- Make informed decisions on contemporary issues involving scientific information.
- Describe the major components of Earth's climate system.
- Describe the mechanisms responsible for climate change over the last 150 years, and how this mechanism is different from those that have caused climate change throughout Earth's history.
- Explain what the greenhouse effect is and how it works.
- Understand the concept of "uncertainty" as it applies to science in general, and climate change in particular.
- Make projections about the impacts of climate change on water supplies, agriculture, and a variety of ecosystems.
- Familiarize with the underlying politics of climate change.
- Assess proposed options for mitigating climate change.

Instructor expectations of you as a student: This is a 200-level course, and while the material will be taught such that it is accessible to non-majors, the material will be taught at a higher and more in-depth level than for a 100-level course. If you are looking for an "easy A," this is not
the course for you! You should spend approximately three hours every week outside of class reviewing the material or you risk falling behind. Obviously the amount of time each student needs to review course material will vary from person to person, but generally speaking, you should spend about one hour going over course material outside of class for every hour spent in class. If you do not understand the material, please make an appointment to see your instructor or your TA - this can not be emphasized this enough! Attendance is not taken, but missing class will unquestionably have a negative impact on your grade. Finally, please do not be late for class. The doors to the classroom make a lot of noise, and a constant stream of late students entering the classroom is extremely disruptive.

**Grading:** Your grade will be based on a series of quizzes, homework, minute papers, three exams taken during the semester, and a cumulative final exam. Quizzes will occur almost every week and will consist of approximately ten multiple choice questions and possibly a short-answer question. Homework will be assigned about once per month. All homework must typed and submitted in person – homework submitted by email will not be accepted. Homework that is turned in late will be assessed a 10% per day penalty. Minute papers are not announced in advance, and will approximately every other week. Minute papers involve briefly answering a few questions asked at the end of class. Exams will be a combination of multiple choice questions and short-answer questions. Please see the course schedule later in this syllabus for all exam dates. Students arriving late to an exam will not be allowed to take the exam after the first person has left the room. Similarly, students arriving late to quizzes will not be allowed to take the quiz. You will be allowed to drop the lowest class-time exam or final exam score. **No makeup exams will be given because of this drop policy.**

If you have a SBU function that conflicts with an exam date (e.g., a sports or performing arts obligation), please contact Dr. Black several weeks in advance so that alternative arrangements for the exam can be made. As per the university’s Provost Office’s official policy, if you will miss a class during the semester for religious reasons, you must notify me of your upcoming absence no later than last day to drop/add a class.

To provide incentive for you to take every class-time exam and to study each section of the course equally, students who take all three class-time exams will be able to opt out of taking the final (otherwise it is mandatory). You can still take the final if you wish – it will not hurt your grade. Either way, the lowest of the four exam grades will be dropped.

Your grade will be determined as follows:

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
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</thead>
<tbody>
<tr>
<td>Quizzes</td>
<td>15%</td>
</tr>
<tr>
<td>Homework</td>
<td>15%</td>
</tr>
<tr>
<td>Minute papers</td>
<td>10%</td>
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<tr>
<td>Class-time exams (best two of three at 20% each)</td>
<td>40%</td>
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<tr>
<td>Cumulative final exam</td>
<td>20%</td>
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<tr>
<td><strong>TOTAL</strong></td>
<td><strong>100%</strong></td>
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Please keep in mind that this is a weighted average. *Ignore the "Total Grade" column in Blackboard!* It does not represent a weighted average and thus does not accurately reflect your
grade for the course! You can use the following formula and grade scale to calculate your grade at any point during the semester:

Course grade = (Quiz average x 0.15) + (Homework average x 0.15) + (Minute paper average x 0.10) + (Exam average x 0.60)

93 to 100 = A
90 to 92 = A-
87 to 89 = B+
83 to 86 = B
80 to 82 = B-
77 to 79 = C+
73 to 76 = C
70 to 72 = C-
67 to 69 = D+
60 to 66 = D
< 60 = F

Extra credit: No extra credit will be available for this course. There will be ample grading opportunities during the semester such that one blown quiz or missed minute paper will not kill your grade. Furthermore, you get to drop one exam grade – this alone is equivalent to extra credit worth 25% of your total grade!

Course policy on academic integrity: Cheating in any way is grounds for failure of the entire course. Cheating includes, but is not limited to: copying answers from another individual, using cheat sheets, crib notes, plagiarism, wireless communications (e.g., texting, email), or any other outside means to send/receive information during an in-class graded assessment, etc. Ask your instructor or TA if you are unsure about what might constitute cheating.

Access to our class's on-line Blackboard site: You can access class information (including lecture slides) on-line at: http://blackboard.stonybrook.edu. If you have never used Stony Brook's Blackboard system, your initial password is your SOLAR ID# and your username is the same as your Stony Brook username, which is generally your first initial and the first 7 letters of your last name.

University notice regarding personal conduct and academic integrity: The University at Stony Brook expects students to maintain standards of personal integrity that are in harmony with the educational goals of the institution; to observe national, state, and local laws and University regulations; and to respect the rights, privileges, and property of other people. Faculty are required to report disruptive behavior that interrupts faculty’s ability to teach, the safety of the learning environment, and/or students’ ability to learn to Judicial Affairs. Each student must pursue his or her academic goals honestly and be personally accountable for all submitted work. Representing another person's work as your own is always wrong. Any suspected instance of academic dishonesty will be reported to the Academic Judiciary. For more comprehensive information on academic integrity, including categories of academic dishonesty, please refer to the academic judiciary website at http://www.stonybrook.edu/uaa/academicjudiciary/
**Americans with Disabilities Act:** If you have any physical, psychological, medical or learning disability that may impact your course work, please contact Disability Support Services, ECC (education Communications Center) Building, room 128, phone (631) 632-6748. They will determine with you what accommodations are necessary and appropriate. All information and documentation is confidential. Students requiring emergency evacuation are encouraged to discuss their needs with their professors and Disability Support Services. For procedures and information, go to the following web site: http://www.ehs.sunysb.edu/fire/disabilities.asp

**Other policies:** Course policy issues not explicitly covered by this syllabus are at the discretion of the instructor.

**Tentative Course Schedule:**

<table>
<thead>
<tr>
<th>Class</th>
<th>Lecture topic</th>
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<tbody>
<tr>
<td>1</td>
<td>Introduction to the climate system</td>
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<tr>
<td>2</td>
<td>Paleoclimatoloy</td>
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<tr>
<td>3</td>
<td>Climate change in the context of the last 100 million years – tectonic controls of CO₂</td>
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<tr>
<td>4</td>
<td>Climate change in the context of the last 3 million years – orbital controls of CO₂, CH₄, and insolation</td>
</tr>
<tr>
<td>5</td>
<td>Climate change in the context of the last 1000 years – solar, ocean, and volcanic controls</td>
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<tr>
<td>6</td>
<td>Climate change over the last 100-150 years, Part 1</td>
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<tr>
<td>7</td>
<td>Climate change over the last 100-150 years, Part 2</td>
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<tr>
<td>8</td>
<td>Methods for predicting and projecting future climate change</td>
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<tr>
<td>9</td>
<td>EXAM 1</td>
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<td>10</td>
<td>Climate impacts on drinking and agricultural water supplies</td>
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<td>11</td>
<td>Effects of climate change on freshwater ecosystems from the tropics to the poles</td>
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<td>12</td>
<td>Future terrestrial ecosystem behavior</td>
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<tr>
<td>13</td>
<td>Climate change effects on ocean circulation and climate feedbacks</td>
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<tr>
<td>14</td>
<td>Climate change effects on world ocean ecosystems and ocean acidification</td>
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<td>15</td>
<td>The rapidly changing Arctic and Antarctic</td>
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<td>16</td>
<td>Agriculture and climate</td>
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<td>17</td>
<td>Climate change and extreme weather</td>
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<td>18</td>
<td>Climate change and human health</td>
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<tr>
<td>19</td>
<td>EXAM 2</td>
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<tr>
<td>20</td>
<td>Fossil fuels – oil, natural gas, and coal; origin and advantages/disadvantages</td>
</tr>
<tr>
<td>21</td>
<td>Alternative energy resources – nuclear, solar, hydroelectric, wind, geothermal</td>
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<tr>
<td>22</td>
<td>It is not all about the greenhouse effect – cue the ozone hole!</td>
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<tr>
<td>23</td>
<td>State-level climate policy and politics</td>
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<tr>
<td>24</td>
<td>National-level climate policy and politics</td>
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<tr>
<td>25</td>
<td>International-level climate policy and politics</td>
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<tr>
<td>26</td>
<td>Geoengineering</td>
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<tr>
<td>27</td>
<td>What you can do</td>
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<tr>
<td>28</td>
<td>EXAM 3</td>
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<tr>
<td></td>
<td>FINAL EXAM</td>
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