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# BRITISH MASTERS OF SCIENCE: FROM NEWTON TO HAWKING

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## WINTER 2017 COURSE SYLLABUS

**Course Number:** HLSC219/HONR299z  
**Instructors:** Boots Quimby  
**Dates:** January 7-11  
**Location:** London  
**Theme Song:** [London Calling](#) by The Clash (if you don't know it please click on the link and listen before class starts)  
**Course materials:** ELMs site

### Instructor and staff contact information:

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<b>Appointments</b>	<i>By appointment at <a href="#">appointment plus</a></i>	
<b>Superpower</b>	Punctuality	Crisis Management

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## COURSE CATALOG INFORMATION

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An 11-day study abroad program in London to study the British masters of science from Sir Isaac Newton to Dr. Stephen Hawking. Britain's great scientists and inventors have been at the forefront of some of history's greatest advances and have shaped science as we know it today. This London study abroad program will explore these scientific masters in the city where they made their great contributions, visiting the places where they lived and worked to experience the historic foundations of science and connect the scientific discoveries of these masters to participants' present day experience of science.

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## LEARNING OBJECTIVES AND ASSESSMENT CRITERIA

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The main learning outcomes of this course are embodied in the following goals:

<b>Content Learning</b>	Describe and discuss the contributions of British scientists who changed the world, from the beginning of modern science in the sixteenth century to the twentieth century breakthroughs into the secrets of life and the universe.
<b>Historical Impact</b>	Connect the scientific discoveries of the past to present day experiences of science and evaluate the impact of these scientists on modern science and your life.
<b>Contextual Understanding</b>	Explain why and how the scientific developments/principles discovered by the British scientists influence and are influenced by societal and historical context.
<b>Communication</b>	<p>Craft written deliverables such as short essay assignments, a travel log, reflection assignments and a final paper, that demonstrate logical organization, a clear goal-driven approach, solid supporting evidence, and proper writing mechanics.</p> <p>Prepare and deliver oral presentations that are clear, engaging, organized, goal- driven, well supported, and professional (i.e., proper length, style)</p>

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## GRADING AND ASSIGNMENTS

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This course features a delectable mélange of assignments that will bring joy to your days and inspiration to your nights. Assignments contribute to your final grade as follows:

Course Assignment	Percentage
<b>Engagement, participation, effort and attitude during site visits and throughout the course</b>	<b>20 (*)</b>
<b>Pre-departure preparation/assignments</b>	<b>20</b>
<b>Class presentations</b>	<b>20</b>
<b>Travel journal</b>	<b>20</b>
<b>Final paper</b>	<b>20</b>
<b>TOTAL</b>	<b>100</b>

(\*) Engagement and participation will impact more than 20% of your grade in exceptionally good or bad cases.

The assignments are described in thrilling detail in a separate document, but in brief...

***Class engagement/participation*** covers your overall participation and engagement in the course. Do an exceptional job and unending benefits shall be yours... show apathy or an unconstructive attitude and both you and your roommate will pay the price.

***Pre-trip assignments*** are due before the start of the abroad portion of the course in order to orient you to the course content and prepare you for in-depth class discussions during the trip. You will complete a variety of interesting pre-trip assignments, ideally on snow skis.

The ***Onsite class presentation*** will be scheduled during the pre-trip meetings. You will design and deliver a short (5-10 minute) presentation on the scientists you are assigned that adds context and analysis to our site visits. Your presentation will be given on a selected day during the trip, either the night before or at the site visit related to your assigned scientist.

***Travel Journal:*** You will keep a travel journal throughout the travel portion of the course. The journal should consist of at least five entries about five different sites we visit (writers choice) relating those sites to the course readings and class discussions. You may use a real or virtual journal for this activity.

The ***Final Paper and Presentation*** will be due at our post-trip meeting. After learning about the numerous British scientists, you get the chance to further research and present the science and societal impacts of a scientist of your choice covered in the course (other than the scientist assigned to you during the pre-trip meeting)!

Grading Scale		
A	Excellent mastery of the subject and outstanding scholarship.	90-100%
B	Good mastery of the subject and good scholarship.	80-89%
C	Acceptable mastery of the subject and usual achievement expected.	70-79%
D	Marginal performance, does not represent satisfactory progress.	60-69%
F	Failure to understand the subject and unsatisfactory performance.	Below 60%

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## COURSE RESOURCES

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We will use the following resources (along with others posted on ELMs) before and throughout the course.

1. [Genius of Great Britain](#) series (5 episodes ~45 min. each; free online)
2. *The Ghost Map: The Story of London's Most Terrifying Epidemic--and How It Changed Science, Cities, and the Modern World* (Required reading/listening; \$11.35 on Amazon and \$24.49 on Audible.com)
3. *The Mold in Dr. Florey's Coat: The Story of the Penicillin Miracle* (Optional; \$13.47 on Amazon)
4. PDF's of articles and/or links to articles to be read during the trip will be posted on ELMs by January 1<sup>st</sup>. You will want to either download these to your electronic device or print a hard copy to bring on the trip since internet access may not always be available during the trip.

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## COURSE POLICIES

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**Time and workload expectations prior to trip:** Since this study abroad experience is only 11 days and the course earns you three credits, a significant amount of pre-trip work is required to fulfill the university required hours for a 3-credit course. A diligent and reasonably efficient student, supplied with plenty of Vanilla Coke, should spend about 24 to 30 hours completing the pre-trip assignments. It is recommended that you spread the work over at least a two-week period. If you are spending significantly more than 30 hours on the pre-trip assignments please contact us and we'll see what we can do.

**Attendance:** Attendance and participation are essential aspects of this course, both for the pre- and post-trip meetings, as well as all abroad activities. If you are too sick to come to the pre-trip or post-trip meetings, focus on getting healthy. Please contact us as soon as you can – before the meetings if possible or at the first opportunity after the meetings if necessary. It is your responsibility to make up all missed material. If you have a non-sickness reason for missing the meetings, contact us in advance as early as possible to determine if it is acceptable. Perfect attendance will be rewarded at the end of the trip with a warm handshake and optional grim nod of approval.

**Assignment submission:** Submit all assignments through ELMs by the date and time listed on the course schedule below. If you need an extension you have to contact us in advance with your request, but do not get your hopes up, we may say “no.” Unexcused late assignments will receive a lower grade. And if you fail to submit an assignment at all you will receive an F on the assignment plus an additional grade penalization.

**Laptop Use:** If you want to write your travel log or access course readings on your electronic device of choice you will need to bring them with you on the trip. We may or may not have access to WiFi, so be sure to download anything you will need to access onto your device.

**Disabilities Statement:** This study abroad experience will require extensive walking and travel on public transportation that will not be conducive to any ambulatory concerns.

**Honor code:** The honor code is our friend. It helps us focus on cool things, like designing

interesting presentations and research papers, and it saves us from the need to worry about dishonesty, plagiarism, cheating, or black market bingo. Please follow the spirit of the honor code and ask whenever something is unclear. Per University policy, if you are found to break any aspect of the honor code, you will be reported to the honor council, which has the option of giving an XF grade for any breach. Primary honor code related issues include:

**Plagiarism:** always take extreme care to acknowledge the source of all quotes, content, and theories, even when you are paraphrasing them. Use proper citations... when in doubt, cite.

**Fabrication:** intentional and unauthorized falsification or invention of any information or citation in an academic exercise.

**Facilitating academic dishonesty:** intentionally or knowingly helping or attempting to help another to commit academic dishonesty.

**Salsa dancing (during class):** let's call this a tentative "no."

**UMD Undergraduate class policies:** If you have never read UMD undergraduate class policies, please know your rights as a student in any course at Maryland by going to this [link](#) and reading the policies. This could change your life even more than this class hopes to.

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## COURSE SCHEDULE

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Pre-Trip Meetings	
<b>Wed. 12/7</b>	7-9 PM Watch <i>The Imitation Game</i> movie as a group followed by deep and interesting discussion (dinner included)
<b>Mon. 12/19</b>	4-5 PM Travel planning meeting (fun, fun, fun!!!)

Pre-Trip Assignments	
Activities	Assignments
<b>Watch <i>Genius of Britain: The Scientists Who Changed the World</i> series on own</b>	<p><b>1.</b> Watch the <a href="#">Genius of Great Britain</a> series (5 episodes ~45 min. each) and complete the worksheet. Due Jan. 10.</p> <p><b>2.</b> Scientists assignments: Each student will be given a scientist matched with a site. That student will present a 5-10 minute presentation at the site when we visit.</p>

<p><b>Fleming Lab</b></p> <p><b>Read <i>The Ghost Map: The Story of London's Most Terrifying Epidemic</i></b></p>	<p>Variable due date.</p> <p>3. Read Alexander Fleming's paper <i>On the antimicrobial action of a Penicillium, with special reference to B. influenza.</i></p> <p>4. Complete the Fleming Lab at home over break. Start by Wednesday Dec. 21 and completed write-up Due Jan. 10, 2017.</p> <p>5. Read or listen to the book <i>The Ghost Map: The Story of London's Most Terrifying Epidemic</i> (\$11.37 on Amazon and \$24.49 on Audible.com) Complete writing assignment. Due Jan. 10.</p>
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Trip Schedule		
Day	Activities	Readings to prepare for the next day's activities
<b>Sat 1/7</b>	Arrival by noon  Bus Tour London (see The Monument to the Fire; SS Great Britain)  Group Dinner	Read Placing Newton in the history of natural Philosophy section at <a href="#">Stanford Encyclopedia of Philosophy: Newton's Philosophy:</a>
<b>Sun 1/8</b>	River tour and Royal Observatory	Excerpts from <i>The Origin of Species</i> by Charles Darwin <a href="http://web.grinnell.edu/courses/BIO/S11/BI0240/Origin%20of%20species%20excerptsAnim%20Behav.pdf">http://web.grinnell.edu/courses/BIO/S11/BI0240/Origin%20of%20species%20excerptsAnim%20Behav.pdf</a>
<b>Mon 1/9</b>	Natural History Museum  Science Museum  Hyde park, Kensington Palace and Harrod's within walking distance	Read the review <a href="#">John Hunter: on Heart Disease</a>
<b>Tue</b>	Royal College of Surgeons:	Read <a href="#">Extracts from the Endeavor Journal of</a>

<b>1/10</b>	Hunterian Museum Welcome Museum  King's College Walk (OXO tower)	<a href="#"><i>Joseph Banks (1769)</i></a>
<b>Wed. 1/11</b>	Botanical Gardens at Kew  Fleming's lab and St. Mary's Hospital	<i>Micrographs</i> by Robert Hooke  <a href="http://www.gutenberg.org/files/15491/15491-h/15491-h.htm">http://www.gutenberg.org/files/15491/15491-h/15491-h.htm</a>
<b>Thur 1/12</b>	Travel to Gloucester via Oxford:  Private Oxford tour (includes Sheldonian theater)  Museum of History of Science  Radcliff infirmary (on tour)  Spend the night in Gloucester	Read <a href="#"><i>An Inquiry Into the Causes and Effects of the Variolae Vaccinae or Cow Pox</i></a>
<b>Fri 1/13</b>	Gloucester:  Whittle Inn and or Tesco  Jenner's House  Travel to Stonehenge	Read <i>Molecular Structure of Nucleic Acids</i> James Watson and Francis Crick  <a href="http://www.nature.com/nature/dna50/watsoncrick.pdf">http://www.nature.com/nature/dna50/watsoncrick.pdf</a>
<b>Sat 1/14</b>	Trip to Cambridge:  Walking Tour  Eat lunch at Eagle Pub (group meal)	Choose one of Stephen Hawking's public lectures to read at  <a href="http://www.hawking.org.uk/lectures.html">http://www.hawking.org.uk/lectures.html</a>
<b>Sun 1/15</b>	Travel to Bletchley Park  Bletchley Museum	<i>On Electrical Decomposition</i> by Michael Faraday  <a href="http://www.chemteam.info/Chem-History/Faraday-electrochem.html">http://www.chemteam.info/Chem-History/Faraday-electrochem.html</a>
<b>Mon 1/16</b>	Faraday Museum	

	<p>Walk to Royal Academy Building</p> <p>Lunch at John Snow pub and visit broad street pump site</p> <p>National Gallery and Portrait Gallery</p> <p>Group Celebration and Dinner</p>	
<b>Tue 1/17</b>	Free day	Take a romp around London and enjoy yourself!!

<b>Post-Trip</b>	
<b>1/11-1/24</b>	Prepare Final paper (Due midnight 1/23)
<b>1/24</b>	2 hour Post class meeting. Student presentations on the science and societal impact of British scientist of choice.