Instructor: Dr. Michelle Bertke (michelle.bertke@georgetown.edu)

Office: Reiss Science 240A (the first room inside the chemistry main office)

Office Hours: By appointment

(Virtual office hours https://georgetown.zoom.us/j/99420642628 (Links to an external site.))

Class Meeting Times: MTWR 10:50am-12:55pm

Class Meeting Location: Reiss 502

Course Objectives:

1. Identify the difference between primary and secondary resources.
2. Develop skills for researching and reading complex scientific research articles.
3. Evaluate the accuracy of scientific facts as they are presented in news outlets and social media.
4. Effectively communicate science topics, specifically involving chemical and biological principles, to a diverse audience.
5. Use primary and secondary literature sources to verify or refute science information presented in media.

Tentative Assignment Schedule:

Week	**Dates**	**Topic**
1	6/6-6/9	Introduction to the course, Introduction to Science Literature, Introduction to Biology and Chemistry - Chemistry and biology basics: atoms, molecules, bonding, introduction to chemical reactions. - How to read primary research articles. - Difference between primary and secondary sources. - Introduction to analyzing science content presented in news articles
2	6/13-6/16	Genetic Engineering, DNA-RNA-Proteins - Advanced biological molecules - Central dogma of biology (DNA-RNA-proteins) - Intermolecular interactions (Hydrogen bonding) - Stem cells - DNA manipulation to control nature
3	6/21-6/23	June 20th NO CLASS Coronavirus and vaccines - Introduction to human anatomy, cells, and the immune system - Virus vs Bacteria - Molecular interactions in the human body - Chemical components of a vaccine - Inorganic vs organic molecules

4	6/27-6/30	Ocean acidification and climate change - Acids and Bases - Gasses, pressures, and diffusion - Chemical reactions - Natural versus human made climate change - Environmental impact - Ecosystems
5	7/5-7/7	July 4th NO CLASS Independent Research Presentations

This lecture and activity schedule is subject to change based on class interest. Updated dates and topics will always be posted on Canvas and announced in class.

Grade:

Your grade will be made of several different components:

- 85 points - 12 Quizzes (Graded as complete/incomplete - you need to complete all of them to receive these points)
- 85 points - 6 Discussion posts (Graded as complete/incomplete- you need to complete 5 of them to receive these points)
- 125 points - 12 Homework and in class activities (Graded on a points scale)
- 100 points - 4 Writing assignments (Graded on a points scale)
- 70 points - 3 Presentations (Graded on a points scale)
- 10 points - 2 Peer reviews of the presentations (Graded as complete/incomplete)
- 25 points - 1 Final Reflection (Graded on a points scale)

The following grading cutoffs will be used:

>470pts: A	469-450: A-	449-435: B+	434-420: B	419-400: B-
399-385: C+	384-370: C	369-350: C-	349-300: D	<300: F

This will be considered the starting point for grade cutoffs. They may be adjusted up or down a point (depending on the outcome of the semester), but this will give you an idea.

More information about assignments:

- **Quizzes** – there will be quizzes that will ask questions about the chemistry and biology content behind each of the topics that we cover in class. These quizzes will accompany the pre-recorded lectures and material posted on Canvas. You will be expected to complete read/view the content and complete the quiz prior to coming to class. The quizzes are graded as either complete or incomplete. The points are an all or nothing system. If you complete all of the quizzes satisfactorily, you will get 85 points. If you don't complete them, you will not get the points. You can re-take the quizzes as many times as you need.

- **Discussion posts** - the discussion posts are meant to bridge the material from one class to the next. The goal of these are to extend your knowledge of the material we talked about in class to additional topics. The discussions will be posted and completed through the Canvas Discussion boards. The discussion posts are graded as either complete or incomplete. The points are an all or nothing system. If you complete 5 of the discussions satisfactorily, you will get the 85 points. If you don't complete them, you will not get the points. You will have the opportunity to resubmit one discussion post for corrections during the semester if you receive an incomplete. Discussions groups will be arranged on Canvas and will be different from your in class discussion groups. This allows for a more meaningful and manageable discussion. It will also provide you an opportunity to share ideas with other members of the class.
- **Homework and in class activities** - these will be a mixture of short writing assignments, online assignments, in class or out of class group activities. These will involve answering question based on the in-class discussion about the material. These assignments will be graded on a points system. There will be at least 12 homework assignments (plus a pre and post class survey) that will be worth a total of 125 points. If there end up being more than 12 assignments, only 12 will be counted toward your final grade. Some assignments will be done in the group and some will be done individually. Always double check if it is an individual or group assignment.
- **Writing assignments -** composed primarily of short answer questions to test your understanding of the connection between news media and the science topics discussed in class. These will replace the traditional exam structure. These are individual assignments and are meant to be completed as such. The questions will be more about application of material rather than memorization. These assignments will be graded on a points system. The research assignments will be worth a total of 100 points, 4 total assignments worth 25 points each.
- **Presentations -** focused on conveying accurate scientific information in a clever and entertaining way. The goal is to make confusing scientific concepts accessible to a wide range of audiences (general public, scientists, professors, or students). There will be a total of 3 presentations worth 70 points. The first presentation is an introduction of yourself (10 points) and the others are more researched based. There will be two peer review assignments (5 points each) that will accompany the second two presentation assignments.
- You will not have a traditional **final exam** in this class, instead you will have a final reflection that will focus on a summary of material from the semester. The final review will be worth 25 points.

Course Overview:

This course has been designed to provide non-science majors with the skills to critically read and understand science (specifically chemistry and biology) as it is presented in the news. Everyone can benefit from being able to read a news article and evaluate the science presented as reliable or not. Students are not expected to have strong background in chemistry and introductory material necessary for the lecture will be presented. The course material will consist of news articles as well as scientific papers in addition to videos and writings posted on Canvas.

There are two main goals of this course: 1) learn background chemistry and biology information and 2) understand the importance of accurate science reporting on society and its leaders. In each unit of this course, we will cover the necessary science facts and information needed to understand each topic. We will also use news and research articles to explore how that science impacts the interactions of humans and the world.

Course Material

Information, including weekly readings and lecture material will be posted on Canvas. Check regularly to make sure that you are prepared in advance for the course. The course will consist of asynchronous and synchronous components.

Asynchronous – Some lectures will be pre-recorded and will be posted on Canvas. These lectures will focus on the background material you need to understand the topics that will be discussed in class the following week. You might find that portions of this material are review, specifically if you have had high level biology or chemistry courses. Quizzes will cover material included in these lectures. These lectures will be assigned prior to talking about the topics in class. You will be expected to complete the lectures and quizzes prior to coming to class.

Synchronous –These will be less lecture and more discussion in small groups, group assignments, and/or shared Google documents. You are expected to be present in these class sessions. If this is an issue, please email me and let me know. Part of your grade will come from in class assignments and discussions.

Class Expectations:

1. There will be synchronous and asynchronous components of this course. If you have an issue with the in-person component, please reach out to me.
2. When you are present in lecture sessions, be prepared to work. An important component of this class is engagement with the material. This course is not a series of facts to be memorized but a process to work through. Rudeness or disruptive behavior will not be tolerated. There will be in class assignments that will build on the material covered out of class.
3. If for some reason you need to miss a class (due to illness-mental or physical, family emergency, etc.), please email me (michelle.bertke@georgetown.edu) as soon as you can. There are many points built into this course and missing one assignment will not drastically affect your grade. It is important to take care of yourself if you feel the need to miss class.
4. Come prepared to class each day. This will involve reviewing material ahead of time and answering discussion questions. Several course sessions will involve in-class work or discussion. Everyone will benefit more from this if each student comes to class prepared to work with the material.
5. Each assignment will be given a deadline to keep the semester moving forward. I would advise you to complete all the assignments by the assigned deadlines. However, I also understand that sometimes you might need a day or two extra to complete the work to best of your ability. Therefore, the deadlines in this course are flexible to a degree. If this becomes a problem and people begin abusing this, I will reinstate strict deadlines. There won't be an opportunity for makeup of missed points (unless they are university approved absences).
6. At the beginning of the session, you will sort into groups for in class discussions and assignments. Each person is expected to participate equally. The goal of these groups is to build community and provide study groups for this class and others. These groups are not set-in stone and can be adjusted if needed.
7. Disrespect or rudeness will not be tolerated in this class, specifically during discussions. As a student of Georgetown, you are held to a high standard of education of the whole person, *cura personalis*.

Part of that in this class is learning how to engage in scholarly debates. Every person is expected to act in a professional manner.

Answering questions satisfactorily:

- Many times in this class, we will focus on the scientific process or the discussion points of a topic and not the ultimate answer. There are certainly times that there is a right or wrong answer (the quiz questions are right or wrong) but other times it is more about your thoughts.
- You will not be graded on correctness for some questions or assignments in this class (for example the discussion posts or some of the in class assignment). Instead, you will be graded on the quality of your answer.
- When answering a question, double check that you are both answering the questions and fully explaining your answers. Your responses should go beyond one sentence, simplified answers.
- Although it is perfectly fine, even recommended, to challenge your classmates' answers/comments and defend your answers, you are expected to do so in respectful and polite manner.
- For an example of what I am expecting for satisfactory answers, see this document..

Collaborative work and presentations:

At the beginning of the semester, you will organize into groups for discussion and presentations throughout the semester. Several class sessions will involve discussion and collaboration on activities. Each person is expected to contribute to this work. Grading on these activities will sometimes be group effort based and sometimes be individually based. These teams will remain the same throughout the semester and should serve as an additional resource for clarification of material and study assistance. The groups can be rearranged if an issue occurs. I encourage you to meet outside of class with your team to review for quizzes, discussions, and to work on homework and worksheets. A portion of your group presentation grades will be based on peer review from members of your team.

There are activities that are turned is as a group and some that are turned in individually. Please make note of what type of assignment it is when you are turning it in. When you work on individual assignments, you are expected to submit original answers. When you collaborate on assignments you should be discussing the concepts or information with your classmates but formulating answers to questions that are in your own words. This class encourages scientific collaboration, but it should be clear that each person has done the necessary work. **Academic dishonesty will not be tolerated!** If you ever have questions about this, ask for clarification!

Access to Literature Articles

Off campus access to library materials (including journals). If you are having trouble viewing primary literature articles, visit the library remote access page https://www.library.georgetown.edu/off-campus-access (Links to an external site.). (Links to an external site.)

Honor Code:

As a student at Georgetown University, you are expected to uphold the university honor pledge (www.georgetown.edu/honor). There will be times when you can work together in pairs or groups, but everyone is expected to understand the material and turn in their own work.

Students agree that by taking this course all required papers may be subject to submission for a Textual Similarity Review to Turnitin.com for the detection of plagiarism. All submitted papers will be added as source documents in the Turnitin.com reference database solely for the purpose of detecting plagiarism of such papers in the future. Use of the Turnitin.com service is subject to the terms of use agreement posted on the Turnitin.com site.

Harassment/Sexual misconduct:

Under no circumstances will harassment or sexual misconduct be tolerated in the classroom. Everyone will be treated with respect and treat others with respect. I am committed to providing support to those who are victims of harassment or sexual assault. However, as a faculty, I am required to report any incidences of harassment or sexual assault to the Title IX coordinator. If you require a confidential resource, Georgetown offers many professionals to contact. Information about reporting or discussing harassment and sexual assault can be found at sexualassault.georgetown.edu.

Accommodations:

When it comes to issues around health and wellness, you may face challenges in your time at Georgetown. It's important to be aware of the resources available to support you. If you have a disability that may affect your academic work or well-being and for which accommodations may be necessary, come to me within the first two weeks of the course (or, in other circumstances, as soon as possible after accommodation becomes necessary) so that I can arrange for your needs to be met in this regard. You will also need to contact the Academic Resource Center (http://academicsupport.georgetown.edu (Links to an external site.)), located in Leavey Center.

Student Support:

There are many resources on campus available to students for support throughout their time at Georgetown, covering physical and mental well-being. You can find a comprehensive brochure listing these resources at https://studenthealth.georgetown.edu/self-care (Links to an external site.).

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