UNIVERSITY of WASHINGTON | TACOMA
Office of Undergraduate Education

T CORE 112C: INTRODUCTION TO SCIENCE
"DISEASES THAT CHANGED THE WORLD"
WINTER 2018

Course Information

(The course schedule is on the last page of this syllabus)

Class Times: MWF, 1:30-2:50PM, WCG 110

Instructor: Jutta Heller, Ph.D.
Office Location: SCI 206
Office Phone: 253-692-4316

E-mail: jheller3@u.washington.edu

- The best way to get in touch with me is via email, as I check it regularly during the day, evenings, and even on weekends (sometimes). While I will do my best to get back to you as soon as possible, don't expect a prompt reply after-hours or on weekends.
- **E-mail Policy:** http://www.tacoma.washington.edu/policies_procedures/E-mail_Policy.pdf

Resources available to you: http://www.tacoma.uw.edu/teaching-learning-technology/e-syllabus-campus-information-resources-policies-expectations

Walk-in Office Hours: Mon & Wed 11 am – 12 pm (in TLC), Tues 2-3:30 pm (in SCI 206), other times by appointment

Please take advantage of my office hours. I really want to help you understand the material and will be more than pleased to talk with you. A willingness to ask questions is the hallmark of a mature, serious student. I am here to help you. You have to do your part, though, and make the effort to come talk to me. And please don't wait until mid-quarter when you've fallen way behind. Start early.

Other Academic Services and Statements (follow the hyperlink for more information)
https://www.tacoma.uw.edu/faculty-assembly/syllabi-service-statements

UW-Tacoma 2017-2018 academic calendar (including course add, drop and withdrawal deadlines):
http://www.tacoma.uw.edu/office-registrar/2017-18-academic-calendar

Course Description
This course will investigate human diseases that significantly affected the course of history. We will consider the biology, transmission and treatment of these diseases, as well as their historical, medical, ethical and social impact on world history.

Course Web Page on Canvas

The TCORE 112 homepage is on Canvas. You can get to Canvas from the main UWT webpage at http://www.tacoma.uw.edu/, then mouse over "Tools" at the top and select "Canvas" from the menu that appears. You should be automatically enrolled in the course and see it listed on your "Dashboard". The Canvas course page has the course syllabus, lecture slides, additional readings, important announcements and handouts, and other fun and useful information that may be added over the course of the quarter. *Be sure to check the Canvas site frequently for announcements and uploaded material.* Let me know if you have any trouble with this and we can figure it out together.

Required Texts and Materials

- Book: Sherman IW. 2007. Twelve Diseases That Changed Our World. Washington (DC): ASM Press.
- Additional materials posted on Canvas.
- A calculator – does not need to be fancy, but should **NOT** be attached to your cell phone.
- Internet access (computer lab or personal computer).

Course Requirements & Grading

http://www.tacoma.uw.edu/enrollment-services/grading-policies

The course grading scheme is set up in such a way that missing just one or two small things will not have a huge impact on your grade, but missing several will!

Learning Objectives

ABILITY TO APPLY THE PROCESS OF SCIENCE

- Understand science is evidence based and grounded in the formal practices of observation, experimentation, and hypothesis testing
- Understand and apply basic principles in experimental design
- Identify problem-specific methodologies
- Gain hands-on experience collecting data to draw conclusions
    - Observations and procedures– importance of documentation
- Evaluate scientific information and the methods used to generate the information

ABILITY TO USE QUANTITATIVE REASONING

- Understand that mathematics underpins science
- Generate and interpret tables and graphs

BILITY TO UNDERSTAND THE RELATIONSHIP BETWEEN SCIENCE, MATH AND SOCIETY

- Understand science/math as a human endeavor in which all people can participate
- Understand how societal issues influence the direction of science and math
- Understand how science and math influence our everyday lives
- Build a sense of civic responsibility

COMMUNICATION/SELF EXPRESSION

- Formulate an original thesis-driven argument and sustain it in both written and verbal communication.
- Express ideas clearly in writing and speaking in order to synthesize and evaluate information before presenting it.
- Identify, analyze, and summarize/represent the key elements of a text.

GLOBAL PERSPECTIVE

- Think outside of cultural norms and values, including their own perspectives, to critically engage the larger world.

Core

The Core program consists of a coordinated series of courses that represent the various disciplines in the university. This course, along with the others in your cohort, fulfills one of the university's general education requirements in each of the areas of knowledge plus composition. The courses are designed to both support and challenge you to develop the critical thinking, writing, research, and analytical skills you'll need at UWT while introducing you to relevant topics in the social sciences, humanities, and sciences.

Assignments

Read each assignment description (excluding in-class assignments) *well before* the due date and ask your instructor for clarification if needed. Assignments are to be completed individually, unless otherwise stated. Your instructor may not be able to access certain formats on Canvas, thus electronic submissions must be .doc, .docx, or .pdf. Graded assignments cannot be redone for a grade increase.

Did you know that you and other UW students can get a **FREE subscription to Microsoft Office 365**? Visit https://www.washington.edu/itconnect/wares/uware/microsoft/microsoft-office-365-proplus/

Pre/Post Surveys = 30 points

You will complete two surveys at the beginning ("pre") and end ("post") of the quarter. These assignments are worth a total of 30 pts and will be used to help science faculty assess:

- how this class impacts your science-related assumptions (TOSRA)
- how this class impacts your scientific literacy skills (TOSLS)
- how this class impacts your understanding of diseases and their impact on history and society

A third survey is short and biographical and is due at the start of the second week of the quarter for extra credit.

In-class activities & exercises = 30 points

- There will be exercises to be completed during most lectures. They may also be based on answering questions or completing exercises that I ask you to work on in groups during lecture. This will help me find out what questions and unclear points still remain at the end of lecture. Since these are measures of participation and exist to encourage attendance and engagement, there will be **no make-up for missed in-class activities**.
- **Reading Quizzes**: there will be a short quiz at the start of any class for which there was a reading assignment from the book. **Please be sure to be on time for this quiz as it cannot be made up!**

Homework

- **Responses (blogs): 4 x 10 points each = 40 points.**
  You must respond to the prompts provided throughout the quarter. These prompts are based on a topic or an issue we have discussed in class. Your blog (200-300 words) can describe the issue being addressed, including personal feelings and opinions, as well as what you think the societal impact is. Keeping a blog (aka "free write") will allow you to develop key skills in critical analysis and writing communication. Assessment rewards thoughtful analysis in your own words and clear, succinct writing.

Quizzes and Exams

- **Two (2) quizzes: 15 points each (30 pts total)**
- **Two (2) exams, including final: 50 points each (100 pts total)**

The quizzes and exams may cover any material related to subjects discussed in lecture, class discussions, or readings. The quizzes and the exams will be a mixture of problems, open-ended questions, and even multiple-choice or fill-in-the-blank questions.

Authentic Lab Experience = 15 points

- As an "introduction to science" course, it is critical for you to experience the scientific process rather than just hearing about it. We will conduct an experiment that looks at the antibiotic resistance in *Staphylococcus epidermidis* bacteria isolated from your skin. Part of this laboratory experiment will be to submit your hypotheses and results in a report. A detailed description of this assignment will be posted on Canvas.

Group Project = 80 points total (45 for progress reports, plus 35 for final presentation)

- Early in the quarter you and one or two of your peers will select a disease of local or global concern and research it from as many angles as you can: molecular, medical, social, psychological, ethical, legal, historical, etc, and develop a public health initiative (or plan) to educate the public about disease prevention, screening, etc. You get to choose the disease, but it has to be one that was NOT covered in detail in class! As part of this assignment you will also do research on one or more scientists who were/are significantly involved in the discovery or research of this disease. You will be completing various parts of this assignment with instructor guidance throughout the quarter.
- **You will be submitting three regular reports on the progress of your research. Think of these progress reports as "drafts" or summaries of your research to date. Each progress report is worth 15 points. More details will be provided in class and on Canvas.**
- This group project will result in either:
    - an oral presentation to the class that will allow you to develop speaking skills
    - **or** a video – such as a Public Service Announcement (PSA) or documentary. UWT staff will help you learn how to film and edit your video, so no technical knowledge is required (see http://www.tacoma.uw.edu/information-technology/multimedia-and-video-production)
    - **or** a poster presented at the Winter Student Showcase in early March (date TBD).
- Either of these assignments is worth 35 points. A detailed description of this assignment will be posted on Canvas.

Points per assignment:

Surveys (TOSLS & TOSRA)	30 pts (9.1%)
Quizzes (2 x 15 pts)	30 pts (9.1%)
In class exercises and Reading Quizzes	35 pts (10.6%)
Homework assignments (Blogs and Problem sets)	40 pts (12.1%)
Lab Experiment Report	15 pts (4.5%)
Exams (2 x 50 pts)	100 pts (30.3%)
Group Project Progress reports (3x15 pts)	45 pts (13.6%)
Group Project Presentation	35 pts (10.6%)
TOTAL POINTS POSSIBLE	**330 pts**

Group Work
Group work is to be equally distributed among the members of your group. Please inform your instructor if a group member is not doing his/her share of the work and you have tried unsuccessfully to resolve the issue. You are still responsible for turning in a complete Final Project even if one or more of your group members drops the class or fails to participate. Those who do not contribute will receive a score of zero for that assignment.

Absences from exams
If you know in advance that you will have a legitimate conflict with a scheduled exam, please let me know in writing during the first week of the course the nature of your conflict and which date it applies to. We may be able to arrange to take the exam 1-2 days in advance. If you miss an exam for a legitimate but unforeseeable reason such as documented illness (one that reasonably prevents you from making it to the exam or a highly infectious and contagious disease), a makeup exam will be conducted at the next possible date and convenience of the instructor. Do not assume that you will be able to make up an exam if 1) it is not a documented medical emergency or 2) you do not provide me with written notice during the first week of classes. Please refer to the section below entitled "Disability Services" for special needs.

Final Grades
Your final grade will be calculated using the formula below. You will receive a point grade on all exams, exercises, and assignments that can be easily converted to a final percentage and a UW decimal grade using a standard UW Grade Schedule (see below). Any questions regarding final grades will be discussed at the beginning of the next quarter so that your instructor may enjoy her break. There will be no rounding up and requests to be "bumped up" to a higher grade will be ignored.

Grading Scale

Letter	% cutoff	UW decimal grade
A	97-100	4.0
	94-96	3.9
A-	93	3.8
	92	3.7
	91	3.6
	90	3.5
B+	89	3.4
	88	3.3
	87	3.2
B	86	3.1
	85	3.0
	84	2.9

Letter	% cutoff	UW decimal grade
B-	83	2.8
	82	2.7
	81	2.6
	80	2.5
C+	79	2.4
	78	2.3
	77	2.2
C	76	2.1
	75	2.0
	74	1.9
C-	73	1.8
	72	1.7

Letter	% cutoff	UW decimal grade
	71	1.6
	70	1.5
D+	69	1.4
	68	1.3
	67	1.2
D	66	1.1
	65	1.0
	64	0.9
D-	63-62	0.8
	61-60	0.7
E	59-0	0.0

Academic Standards/Plagiarism
A major part of your experience at UW Tacoma will be reading, synthesizing, and using the knowledge and ideas of others. To plagiarize is to use the ideas—or unique phrasing of those ideas—without acknowledging that they originate from someone or someplace other than you. Attributing where you get your information builds your own authority to speak on that topic and provides valuable backing to the arguments you make. Attribution also distinguishes your ideas and words from those of others who came before you. At the University of Washington, plagiarism is a violation of the student conduct code, and the consequences can be serious. Though citing, quoting, and paraphrasing can be confusing at first, it is essential for your success at

UWT that you familiarize yourself with these important conventions of academic writing. Additionally, plagiarism can be understood differently in various disciplines. For instance, the ways in which one summarizes others' ideas in texts, or attributes information from texts in one's own paper, are not the same in the sciences as they are in the humanities, or the social sciences. This means it is vital that you understand the specific expectations and guidelines for writing that will help you avoid plagiarizing in this class. If you have questions about what amounts to plagiarism, you are strongly encouraged to seek guidance from faculty and the Teaching and Learning Center as soon as possible.
http://depts.washington.edu/grading/pdf/AcademicResponsibility.pdf

Incomplete
http://www.washington.edu/students/gencat/front/Grading_Sys.html#I
An Incomplete is given only when the student has been in attendance and has done satisfactory work until within two weeks of the end of the quarter and has furnished proof satisfactory to the instructor that the work cannot be completed because of illness or other circumstances beyond the student's control. A written statement of the reason for the giving of the Incomplete, listing the work which the student will need to do to remove it, must be filed by the instructor with the head of the department or the dean of the college in which the course is given.

Late Work
If you have a serious personal issue and need an extension on an assignment, please contact me **in advance** to make alternate arrangements and get a possible no-penalty extension. I reserve the right not to grant extensions. I do not grant extensions after due dates have passed. Late submissions of lab worksheets or assignments will not be accepted without an extension given prior to the due date. A late submission of the paper will be penalized at a rate of 1/3 off per day that it is late and is worth no points after 3 days, including weekends and holidays. I will not give you feedback on late assignments and papers (including drafts) and they will not necessarily be graded in a timely manner.

Electronic Devices
Electronic devices (including, but not limited to, cell phones, pagers, laptops, and personal digital assistants) may only be used in the classroom ONLY with the permission of the instructor. Activities that are non-relevant to the course, such as reading/writing emails, social networking, facebooking, surfing the web, playing games, and texting, are considered disruptive activities when class is in session AND WILL NOT BE ALLOWED. I will not hesitate to publicly ridicule students who do not comply with this policy.

Classroom etiquette
To ensure a positive, effective learning environment, you must always act and speak respectfully to one another and to me.

- Please arrive promptly, and do not pack up your things or leave until the lesson is over. If an exception is unavoidable, choose your seat unobtrusively.
- Attendance is expected at all class periods. If you are absent from class, it is your responsibility to check on announcements made while you were absent.
- Your fellow classmates and your instructor will all appreciate it if you do not give them your contagious disease. Please do stay home from class if you are unwell and suspect it may be catching. It is your responsibility to contact your instructor to come up with a make-up plan.
- Class participation is critical and expected. Contribute to the learning atmosphere, ask/answer questions, engage in group work, and come prepared. Preparation may include having done any assigned readings, having had adequate sleep and/or caffeine, and having a positive attitude so you

are *mentally* present - not just physically! **Please review the Participation Rubric posted on Canvas.**

- Fully engaging in the course means that you should NOT be doing work for other classes, or socializing (in person or electronically) during our class time. If I deem your behavior disruptive, I may ask you to leave. If you are bothered by someone else, feel free to speak to them (respectfully) and don't hesitate to tell me.
- We will be engaging in a laboratory experiment in the middle of the quarter.
- Turn cell phones (pagers, laptops with alarms) off before you enter lecture, especially for exams!!!
- Do not bring children, friends or other visitors to class without talking to me about it first.
- In return you can expect from me to show you as much respect as you show me. I am always available to meet with you if there is anything you wish to discuss with me. Come to my office hours or make an appointment. I will also do my very best to return graded exams and assignments to you as soon as possible.

Missing class

Make responsible decisions about your own and public health. Please contact me *as soon as possible* if you cannot make it in to a quiz or an exam for a *legitimate* reason like inclement weather, personal/family member illness, or a university-sponsored absence, so we can make alternate arrangements for making up what you missed. Please do not wait until the end of the quarter to contact me about missed assignments, as it gets progressively harder to arrange for a makeup!

Expectations

Although there is a large body of knowledge that you must know to succeed in biology, it is critical for you to do more than just memorize 'facts'. One of my primary goals is to emphasize critical and analytical thinking skills. I will ask you to identify the similarities, differences, and connections between processes and events, interpret experimental results, and identify unifying concepts. I want you to understand how and why things happen--not just that they do. This sort of understanding requires more active involvement on your part than just taking in facts and regurgitating them back to me on exams. When you encounter new material, continually ask yourself questions such as the following:

- How do we know this; how would someone find this out?
- Is this a detail or a major idea; does it apply to only this situation or to others?
- Does the concept or mechanism make sense? How does this fit with what I already know? For example, how does it relate to what we talked about three weeks ago? How is it different from or similar to other concepts or processes covered in lecture?
- What is its significance in this particular context and in the bigger picture? If we are talking about something on the organism level, how does that relate to what is going on at the cell or population level and vice versa?

Constantly challenge yourself with questions and figure out the answers. Whatever happens, don't just passively accept anything that you're told--especially if it doesn't make sense to you! To succeed in this course, it is crucial that you master the strategy of how scientists approach problems and that you think critically about them. Not only will you need to understand the concepts involved and remember terminology, concrete examples, and mechanisms, you will also need to be able to explain those ideas clearly and concisely and apply them to novel situations.

Attending lectures

Lectures introduce topics and how biologists think about them. Lectures may not always follow the material in the textbook, but will give you an idea of what points I consider to be most important. Exams are likely to be based heavily though not exclusively on lecture material.

You are responsible for all material covered in lecture. Come to class and take detailed notes. Not all areas of biology are equally interesting to everyone, but work at maintaining interest and focus. Challenge yourself by asking questions and by relating the material to everyday life.

When taking notes, don't try to write down every word. Use abbreviations, short phrases, or a consistent shorthand system to capture the main ideas. For each main idea, include some supporting details, examples, diagrams, or comments. Also be sure to write down new vocabulary terms and their definitions. Then review your notes as soon after class as possible; this is a good time to summarize each of the main points. Try to come up with several potential exam questions based on the material covered. You may also wish to compare your notes with those of classmates.

I will provide lecture slides from Powerpoint presentations on Canvas. I do this so that you can go back and review what we have covered. I urge you to print the slides out before class (in handout format) so that you can take notes directly on the sheet. Sitting and watching as I write on the slides is nowhere near as effective as taking notes yourself. Powerpoint should be a tool, not a crutch. Writing your own notes forces you to engage with the material. Only when you actively engage with the material will you remember it and be able to apply it (on exams, for example!).

Using Your Text

Your text can be an extremely valuable resource at several stages of your study. Be sure to skim through the assigned material before lecture. You will be able to get more out of the lecture if you already have a sense of the context in which the material will be presented. After lecture, go back and reread the chapter, with an aim toward synthesizing what you learned in lecture, filling in the gaps in your understanding, and drawing connections between the ideas presented in this lecture and those presented earlier in the course. Highlight important points and/or make an outline as you go, numbering the key ideas and summarizing each section in your own words. Stop periodically and make sure you understand and remember what you just read.

Preparing for Exams

Study. The general rule for university classes is that you should expect to spend at least 3 hours out of class for every hour in class; for a 5 credit class, that means you should expect to spend about 15 hours each week beyond in-class time. These hours should be spent reading, writing, studying, or doing other activities related to the class. Don't wait until exam time to figure things out; there is too much material to master for cramming to work well. Spend time each day reading your text, reviewing your notes, learning new vocabulary, and working on problems or study questions. Simply reading the text passively will not do the trick. You must be able to work with the material, apply it to novel situations, solve problems, and perhaps most importantly, explain it clearly to another person.

Office Hours

Take advantage of my office hours and pre-exam review sessions. I really want to help you understand the material and will be more than pleased to talk with you. A willingness to ask questions is the hallmark of a mature, serious student. I am here to help you. You have to do your part, though, and make the effort to come talk to me. And please don't wait until mid-quarter when you've fallen way behind. Start early.

Study Groups

Study groups can be a powerful learning experience and can make studying more efficient, effective, and fun. Focused study with others allows you to pool your ideas and see material from a different perspective. It also gives you a chance to organize, verbalize, and explore your own ideas or questions and get feedback from the group. I strongly encourage you to form study groups that meet regularly to discuss the subject matter of the course.

To form a study group:

- Talk to people in class to find others with similar schedules and goals.
- Aim for 2 – 4 students per group. Larger groups may not give everyone a chance to participate fully; smaller ones may not generate enough ideas or feedback.
- Choose a convenient, comfortable place to meet, with minimal distractions. Schedule the first meeting early in the quarter, to clarify the goals of the group (to go over weekly study questions, to study for exams, to discuss the reading and/or ideas generated by the class, etc). I recommend a weekly meeting, but other arrangements can work well, too. Make verbal commitments not to schedule other activities during the agreed on meeting times.
- At the first meeting, discuss how long you will meet each time, the kinds of activities you think would be most helpful, if you would prefer a structured group that might assign particular duties or questions to each person or a group that is more free-form, etc. If you find that the group you've signed up for doesn't have compatible goals or preferences, find another.

STUDY GROUP MEMBERS' CONTACT INFORMATION

Name	Email	Phone	Other

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COURSE SCHEDULE*

*** Subject to change at instructor's discretion.**

Wk	Day/Date	Class Topic	Readings & Assignments
1	Wed Jan 3	Introduction – Meet & greet	
	Fri Jan 5	Course Overview: Syllabus, Canvas, etc.	
2	Mon Jan 8	"How I Learned to Love the Library"; The spread and impact of diseases	**Biographical Survey due (Canvas)**
	Wed Jan 10	Introduction to the Biology: Cells & Molecules	**TOSLS, TOSRA surveys due (Canvas).**
	Fri Jan 12	Introduction to Bacteria	
3	**Mon Jan 15**	**MLK Holiday- NO CLASS**	
	Wed Jan 17	The Plague	Sherman Ch. 5
	Fri Jan 19	Cholera	Sherman Ch. 3
4	Mon Jan 22	**Quiz 1;** Group project prep time	**Group Project Progress Report #1 Due**
	Wed Jan 24	Tuberculosis	Sherman Ch. 7
	Fri Jan 26	View slides of pathogens under microscope **Meet in SCI 211. Wear lab-appropriate clothing.**	**Response/Blog #1 due**
5	Mon Jan 29	Group project prep time**;** Midterm review	
	Wed Jan 31	**Midterm Exam**	
	Fri Feb 2	Antibiotic resistance and introduction to lab exercise	Lab Exercise Handout
6	Mon Feb 5	Antibiotic resistance lab exercise, Part 1 **Meet in SCI 211. Wear lab-appropriate clothing.**	**Response/Blog #2 due**
	Wed Feb 7	Antibiotic resistance lab exercise, Part 2; **Meet in SCI 211. Wear lab-appropriate clothing.**	**Group Project Progress Report #2 Due**
	Fri Feb 9	Antibiotic resistance lab exercise, Part 3; **Meet in SCI 211. Wear lab-appropriate clothing.**	
7	Mon Feb 12	Eukaryotic Pathogens and their diseases: Malaria	Sherman Ch. 8
	Wed Feb 14	Introduction to Viruses	**Response/Blog #3 due**
	Fri Feb 16	Viruses and their Diseases: Influenza	Sherman Ch. 10
8	**Mon Feb 19**	**Presidents Day Holiday –NO CLASS**	
	Wed Feb 21	Viruses and their Diseases: Smallpox	Sherman, Ch. 4 & PACKET
	Fri Feb 23	Viruses and their Diseases: HIV/AIDS	Sherman Ch. 11
9	Mon Feb 26	**Quiz 2;** Group project prep time	**Group Project Progress Report #3 Due**
	Wed Feb 28	Vaccinations: History and current issues	Sherman, pp. 57-67
	Fri Mar 2	Introduction to Genetics	**Response/Blog #4 due;**
10	Mon Mar 5	Genetic Disorders: Hemophilia and the Royal House of Europe	Sherman Ch. 1
	Wed Mar 7	Oral Presentations	**Group Project due**
	Fri Mar 9	Oral Presentations, cont'd	
11	**Mon Mar 12**	**FINAL EXAM, 1:30-3 PM, WCG 110**	

Disclaimer: Topics, readings, due dates and the rest of this syllabus may be revised or updated as the quarter unfolds. Such changes will be announced in class, and additionally an updated version of this document may be posted on Canvas. It is your responsibility to keep abreast of these changes! *Absence is not an excuse for ignorance of these changes*. **If you need to take time off to observe religious holidays, please let me know. I am happy to accommodate your request.**