

## Integrated Science 1000Z: Evolution of the Scientific Process

### Course Outline: 2021-2022

Welcome to IS 1000Z! We are excited to collaborate with you this academic year to explore the evolution of the scientific process. By taking this course, we hope that you are able to deepen your understanding and appreciation of science.

## 1. Course Information

Course Title:	Integrated Science 1000Z: Evolution of the Scientific Process
Lecture Section:	001
Description:	Solving the complex and challenging scientific problems that face humanity today requires an integrated approach. This course examines the nature of classical experiments and how the scientific process has developed over time. Students will engage in understanding scientific discoveries by enhancing their understanding of the scientific method and experimental design.
Prerequisites:	Enrolment in Year 1 of the Western Integrated Science program (or Year 2 if a student joined WISc in January of the previous academic year)
Antirequisites:	None
Course Hours:	3 lecture hours (biweekly), September – April
Credits:	0.5
Lecture Times:	Wednesdays 6:30 – 9:30 pm
Location:	SH-3315

## 2. Instructor Information

Instructors:	Dr. Christina Booker Integrate Science/ Chemistry Office: CHB 21/off-campus <a href="mailto:cbooker2@uwo.ca">cbooker2@uwo.ca</a>	Dr. Gurpaul Kochhar Integrated Science/ Chemistry Office: MSA 1201 <a href="mailto:gkochhar@uwo.ca">gkochhar@uwo.ca</a> (Course coordinator)
Email Response:	We will strive to respond to your email within 24 hours on weekdays, but please allow up to 48 hours for a response. Please use your @uwo.ca email address and specify "IS1000Z" within the subject of your email. Please address all emails to Dr. Kochhar ( <a href="mailto:gkochhar@uwo.ca">gkochhar@uwo.ca</a> )	
Office Hours:	By appointment. Please email your instructor(s) to make an appointment.	

### 3. Responsibility for Checking Prerequisites

Unless you have either the prerequisites for this course or written special permission from your Dean to enroll in it, you will be removed from this course and it will be deleted from your record. This decision may not be appealed. You will receive no adjustment to your fees in the event that you are dropped from a course for failing to have the necessary prerequisites.

### 4. Course Website

All course material will be posted to OWL: <http://owl.uwo.ca>. Students should check OWL (<http://owl.uwo.ca>) on a regular basis for news and updates. This is the primary method by which information will be disseminated to all students in the class. Students are responsible for checking OWL on a regular basis. If students need assistance, they can seek support on the OWL Help page or contact the Western Technology Services Helpdesk (519)-661-3800 ext. 83800.

OWL will be used for the following:

- Announcements
- Posting lecture slides
- Submitting work and discussion
- Accessing course component grades

### 5. Required Course Materials

Textbooks:

- 1) *The Structure of Scientific Revolutions* by Thomas S Kuhn with an introductory essay by Ian Hacking (Chicago; 4<sup>th</sup> edition – the 50<sup>th</sup> anniversary edition), ISBN: 978-0-226-45812-0 (used in first term)
- 2) *Science, Culture, and Society: Understanding Science in the 21<sup>st</sup> Century* by Mark Erickson (Polity Press; 2<sup>nd</sup> edition), ISBN: 978-0745-66225-1 (used in second term)

Please note that these textbooks are **required** for participating in the in-class discussions and assignments. Both textbooks are available in hard copy through the Western Bookstore. Electronic copies are also available for order online using the link:

<https://press.uchicago.edu/ucp/books/book/chicago/S/bo13179781.html>

### 6. Course Overview and Learning Outcomes

This discussion course focuses on examining the interplay between major, historical scientific discoveries and political, cultural, and sociological revolutions. Through research and discussion, students will be able to assess whether particular scientific revolutions occur independently of political, social, and economic change or as a consequence of these changes.

In the first term, we will be using Kuhn (4<sup>th</sup> Ed) to address the following basic questions:

- What is the scientific process?
- What is the definition of a scientific paradigm?
- What is a paradigm shift?
- Are scientific revolutions related to political and social change?

In the second term, we will be using Erickson (2<sup>nd</sup> Ed) to discuss scientific concepts in culture and society from a sociological perspective. Students will develop the critical scientific literacy skills as they navigate through academic databases, historical material, and grey literature.

The overall learning outcomes for the course are as follows:

- Define a scientific paradigm and explain the scientific process.
- Discuss the interrelationships between major, historical scientific breakthroughs and political, social, and economic change.
- Locate and evaluate historical material, scientific literature, and grey literature
- Discuss a historical scientific revolution through an oral presentation and the impact of science through a poster presentation

## 7. Assessments

Your final grade for this course will be calculated according to the components below. Note that this course consists of multiple assessment components; it is essential that you plan ahead and do **not** leave everything until the end of the course!

Course Component	Weight
<b>Scientific Discussions and Engagement</b>	<b>18%</b>
Term 1	9%
Term 2	9%
<b>Presentations*</b>	<b>15%</b>
Term 1: Scientific Revolutions Oral Presentation	7.5%
Term 2: Science and Society Poster Presentation	7.5%
<b>Written assignments</b>	<b>24%</b>
Term 1: Scientific Revolutions Essay	12%
Term 2: Science & Society Essay	12%
<b>Exams</b>	<b>43%</b>
Midterm (in December)	20%
Final Exam (in April)	23%

\*A group grade is assigned unless extenuating circumstances apply.

To pass the course, you need to obtain an overall course grade of at least 50%. The grades for each assessment will be posted to the OWL course page regularly. It is your responsibility to check these marks regularly. Any errors or requests for appeals to your grades must be reported to your instructor within **two** weeks of the posting of a grade item.

## 8. Scientific Discussions and Engagement

There are seven classes per term. You are expected to attend and participate in every class. You may miss **one** class during the year without penalty with the exception of the classes scheduled for presentations (group presentations for term 1 and poster presentations for term 2). If you miss more than one class, you must provide valid medical or other supporting documentation to the academic counselling office of the Faculty of Science within **five** days of the missed class. The scientific discussions and engagement grade is worth a total of 18 % and is based on completing these criteria:

1. Attendance of the entire class (3% - 1.5% for attendance for each term)
2. Pre-Class Online Readings Discussion (15% - 1.5% for each discussion post). There is a total of 10 online discussions throughout the year and each discussion is worth a total of 9 marks and will consist of the following:
  - a. Post a short (200 – 300 word) discussion (summary + reflection) of the required readings to the OWL discussion forum.
  - b. Respond to at least 3 posts from your fellow classmates

Each online discussion will be graded according to the following rubric:

	Poor	Good	Excellent
<b>Summary and References</b>	Discussion post summarizes the readings on a surface level.  <i>1 mark</i>	Discussion post summarizes readings but does not include specific references/quotes from the text.  <i>2 marks</i>	Discussion post thoughtfully summarizes readings and integrates specific references/quotes from the text using APA format.  <i>3 marks</i>
<b>Reflection</b>	Discussion post does not include a reflective component.  <i>0 mark</i>	Discussion post includes a basic reflective component.  <i>1 mark</i>	Discussion post makes insightful connections between the readings and life/ society/ science experience/ in-class discussions/ future career/ history/ politics/ etc.  <i>2 marks</i>
<b>Length</b>	Discussion post does not meet length requirement of 200 – 300 words  <i>0 marks</i>		Discussion post meets length requirement of 200 – 300 words  <i>1 mark</i>

<b>Replies</b>	1 reply <i>1 mark</i>	2 replies <i>2 marks</i>	3 replies <i>3 marks</i>
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Students must submit their summary electronically to the OWL discussion **two days before the scheduled class at noon** (i.e. before 12 pm on the Monday before the Wednesday class). Each summary will be peer reviewed by other members in the class. You will be responsible for commenting on **at least three** other posts from your fellow classmates *prior* to the start of class on Wednesday at 6:30 pm. Your comments should be 2-3 sentences and be respectful and constructive. Your instructors will organize the summaries and highlight the key points from the discussion during class.

## 9. Presentations

In groups, you will prepare an oral presentation at the end of term 1 and a poster presentation at the end of term 2. Each presentation is worth 7.5% of your final grade. The rubric below will be used to evaluate your presentations.

	Poor	Fair	Good	Excellent
<b>Selection and structure of material</b>	Does not demonstrate an ability to generate ideas or relate to course content  <i>0 marks</i>	Relates course content but does not include new ideas, and does not balance between revolution and book connections  <i>1 – 2 marks</i>	Relates course content, presents new ideas, and somewhat balances between revolution and book connections  <i>3 – 4 marks</i>	Indicates and excellent grasp on course content and has a great balance between revolution and book connections.  <i>5 – 6 marks marks</i>
<b>Visual content</b>	Presentation slides contained many grammatical and spelling errors and/or poor text/image display on slides  <i>0 marks</i>		Presentation slides contained proper grammar and spelling errors and good combination of text/image display on slides  <i>1 -2 marks</i>	Presentation slides contained no grammatical and spelling errors and excellent combination of text/image display on slides.  <i>3 -4 marks</i>
<b>Verbal communication</b>	Ideas and concepts were not communicated clearly  <i>0 marks</i>		Ideas and concepts were presented using appropriate language.  <i>1 -2 marks</i>	Ideas and concepts were clearly communicated in an effective and engaging manner using appropriate and carefully chosen language.  <i>3 -4 marks</i>
<b>Peer evaluation (Peer score based on above criteria)</b>	<i>0 marks</i>		<i>1 mark</i>	<i>2 marks</i>

### Term 1 scientific revolutions oral presentation

Each group will prepare an oral presentation using PowerPoint or any other presentation tool. You will have 12 minutes to present your summary and an additional 3 minutes to answer questions at the end of the presentation. All groups are required to upload their presentation to the OWL assignment folder **48 hours** before the presentation date. See section 20 for in-class presentation date.

### Term 2 science and society poster presentation

Each group will present a poster (either a digital or physical version). Your instructors will provide you with more information on the presentation including topics and selection deadlines.

## 10. Written Assignments

You will write two essays throughout the year (one per term). Each assignment will be based on your presentation in the term. You may work collaboratively with your group members on your research; however, you must write your assignments individually. Each written assignment is worth 12% and consists of two components – an essay overview (~100 words) and the complete essay (1000-1500 words), which must be submitted by the deadlines outlined in section 20. The peer feedback for the essay overview is due one week after the essay overview deadline. The rubric below will be used to evaluate your written assignments.

	Poor	Fair	Good	Excellent
<b>Ideas and relation to textbook</b>	Ideas do not relate to textbook  <i>1 mark</i>	Ideas relate to course readings but no new connections are presented  <i>2 marks</i>	Ideas relate to course readings and new connections are presented  <i>3 marks</i>	Ideas relate to course readings and new connections are presented in an insightful, rich discussion  <i>4 marks</i>
<b>Connection to presentation topic and impact on wider society</b>	Ideas do not connect to presentation topic and impact on society is not discussed  <i>1 mark</i>	Ideas somewhat connect to presentation topic but impact on society is not discussed  <i>2 marks</i>	Ideas connect to presentation topic and impact on society is discussed  <i>3 marks</i>	Ideas strongly connect to presentation topic and impact on society is explored in a deep and thoughtful way.  <i>4 marks</i>
<b>Organization of main ideas/ arguments</b>	Contains irrelevant material, is disorganized, or inconsistent  <i>1 mark</i>	Appropriate ideas/ arguments are included, but not communicated in an organized or consistent fashion  <i>2 marks</i>	Relevant ideas/ arguments are provided and communicated in an understandable way  <i>3 marks</i>	Relevant ideas/ arguments are effectively presented in a consistent, compelling and persuasive format  <i>4 marks</i>
<b>Language and communication</b>	Unclear writing with grammar /spelling errors  <i>1 mark</i>	Some unclear ideas or poor vocabulary choices with some grammar/spelling errors  <i>2 marks</i>	Appropriate language, proper spelling and grammar  <i>3 marks</i>	Clear communication in an effective and engaging manner with correct spelling and grammar  <i>4 marks</i>
<b>References</b>	No reference or in-text citations included  <i>1 mark</i>	Some references included but in-text references are not included  <i>2 marks</i>	References and in-text references included with only minor errors  <i>3 marks</i>	References and in-text references included and referenced according to APA format  <i>4 marks</i>

<b>Essay Overview</b>	No essay overview submission nor peer feedback given  <i>0 marks</i>	Submission of overview or peer feedback is incomplete  <i>0.5 marks</i>	Submission explains main ideas of essay OR peer feedback provided to 3 peers  <i>1 mark</i>	Submission explains main ideas of essay AND peer feedback is provided to 3 peers.  <i>2 marks</i>
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Please note that all written assignments may be subject to submission for textual similarity review to the commercial plagiarism detection software Turnitin under licence to the University for the detection of plagiarism. All papers submitted for such checking will be included as source documents in the reference database for the purpose of detecting plagiarism of papers subsequently submitted to the system. Use of the service is subject to the licencing agreement, currently between The University of Western Ontario and Turnitin.com (<http://www.turnitin.com>).

## 11. Tests and Pathway to Success

There will be a midterm test in December and a final exam in April. Final exams are not returned to students; however, students may request to see them. Both the midterm and final exam will consist of multiple choice and short-answer type questions. The exact dates will be released when the exam schedule becomes available.

Success in this course requires you to complete all the course requirements by the deadlines. To maximize your grade in the course, you should develop the following habits:

- read the assigned readings and prepare your written summaries before each class
- attend class regularly (in-person and online)
- prepare for presentations
- plan ahead for your written assignments
- seek regular help from your instructors and/or classmates if you do not understand a concept

## 12. Late Submissions and Make-up Policy

Late submissions:

For any assessments submitted past the deadline, there will be a **20% penalty per day** applied to your mark.

Missed assessment policy:

**Midterm and Final Exam** – As both the midterm and final exam are take-home, there will be no make-up exam. For special circumstances that require an extension (e.g. illness, death in the family, etc), you must seek approval for the absences as soon as possible. Approval can be granted through a self-reporting of absence or via the Dean’s Office or Academic Counselling unit of your home faculty.

**Scientific Discussions and Engagement** – No make-up opportunities will be offered, beyond the allowance of missing one class without penalty. If you receive academic consideration for missing class or missing an online discussion, you will be excused from this missed component. (see section 8).

**Presentations** – If you anticipate missing your presentation, it is your responsibility to inform your presentation group members and the instructors at least **24 hours** before your presentation date. Academic consideration is required to book a make-up presentation date.

**Written Assignments** – Academic consideration is required in order to receive an extension on your written assignment. If you have academic consideration via an SRA (self-reported absence) for a late assignment, your new due date will be 24-h after your 48-h SRA. It is your responsibility to submit your assignment according to your revised due date.

University policy on missed course work:

1. If you are unable to meet a course requirement due to illness or other serious circumstances, you must seek approval for the absence as soon as possible. Approval can be granted either through a self-reporting of absence or via the Dean’s Office/Academic Counselling unit of your Home Faculty. If you are a Science student, the Academic Counselling Office of the Faculty of Science is located in NCB 280, and can be contacted at [scibmsac@uwo.ca](mailto:scibmsac@uwo.ca)
2. For further information, please contact the university’s policy on absences - [https://www.uwo.ca/sci/counselling/procedures/academic\\_consideration\\_for\\_absences](https://www.uwo.ca/sci/counselling/procedures/academic_consideration_for_absences)
3. It is the student’s responsibility to make alternative arrangements with their instructor once the accommodation has been approved and the instructor has been informed.
4. In the event of a missed final exam, a “Recommendation of Special Examination” form must be obtained from the academic counselling office immediately.

## 13. Academic Integrity

Violations of academic integrity are taken very seriously. Carelessness or ignorance is not a defense for violations of academic integrity. The University policy on cheating plagiarism, or other scholastic offenses can be found by accessing the link.

[http://www.uwo.ca/univsec/pdf/academic\\_policies/appeals/scholastic\\_discipline\\_undergrad.pdf](http://www.uwo.ca/univsec/pdf/academic_policies/appeals/scholastic_discipline_undergrad.pdf).

Scholastic offenses include but are not limited to cheating on a test or exam, plagiarizing a course assignment, and copying information from websites or textbooks without referencing the appropriate sources. A student who is caught cheating or committing any other violation of academic integrity will result in a mark of zero for that grade item and may be subject to further academic penalty, which may include expulsion from the program.

## 14. Student and Classroom Conduct

The classes in this course are intended to provide you with an opportunity to learn in a safe and inclusive environment. Both the instructors and students have a collective responsibility to establish a safe classroom. **Due to the COVID-19 pandemic, everyone will be required to wear a mask at all times in the classroom.** Other classroom policies:

- Limiting your conversations to those essential to the course content
- Arriving to class on time
- Switching off your cell phones when you arrive to class



- Not leaving during classes unless it is an emergency. Please inform the instructors at the start of class if you have to leave the class early

Disruptive classroom behaviour or on OWL will not be tolerated. Students in class who persist in loud, rude, or otherwise disruptive and inappropriate will be asked to leave and may receive further academic penalties as determined by the instructors. Further information on the Code of Student Conduct can be found by accessing the link <https://www.uwo.ca/univsec/pdf/board/code.pdf>

## 15. Accessibility and Accommodations

### Accommodation Policies

Students with disabilities work with Accessible Education (formerly SSD) which provides recommendations for accommodation based on medical documentation or psychological and cognitive testing. The Academic Accommodation for Students with Disabilities policy can be found at:

[https://www.uwo.ca/univsec/pdf/academic\\_policies/appeals/Academic\\_Accommodation\\_disabilities.pdf](https://www.uwo.ca/univsec/pdf/academic_policies/appeals/Academic_Accommodation_disabilities.pdf)

### Academic Consideration for Student Absence

Students will have up to two (2) opportunities during the regular academic year to use an on-line portal to self-report an absence during the semester, provided the following conditions are met: the absence is no more than 48 hours in duration, and the assessment for which consideration is being sought is worth 30% or less of the student's final grade. Students are expected to contact their instructors within 24 hours of the end of the period of the self-reported absence, unless noted on the syllabus. Students are not able to use the self-reporting option in the following circumstances:

- for exams scheduled by the Office of the Registrar (e.g., December and April exams)
- absence of a duration greater than 48 hours,
- assessments worth more than 30% of the student's final grade,
- if a student has already used the self-reporting portal twice during the academic year

If the conditions for a Self-Reported Absence are *not* met, students will need to provide a Student Medical Certificate if the absence is medical, or provide appropriate documentation if there are compassionate grounds for the absence in question. Students are encouraged to contact their Faculty academic counselling office to obtain more information about the relevant documentation.

Students should also note that individual instructors are not permitted to receive documentation directly from a student, whether in support of an application for consideration on medical grounds, or for other reasons. **All documentation required for absences that are not covered by the Self-Reported Absence Policy must be submitted to the Academic Counselling office of a student's Home Faculty.**

For policy on Academic Consideration for Student Absences - Undergraduate Students in First Entry Programs, see:

[https://www.uwo.ca/univsec/pdf/academic\\_policies/appeals/Academic\\_Consideration\\_for\\_absences.pdf](https://www.uwo.ca/univsec/pdf/academic_policies/appeals/Academic_Consideration_for_absences.pdf)

For the Student Medical Certificate (SMC), see:

[http://www.uwo.ca/univsec/pdf/academic\\_policies/appeals/medicalform.pdf](http://www.uwo.ca/univsec/pdf/academic_policies/appeals/medicalform.pdf)

### **Masking Guidelines**

Students will be expected to wear triple layer, non-medical, paper masks at all times in the classroom as per University policy and public health directives. Students who are unable to wear a mask must seek formal accommodation through Western Accessible Education, and present medical documentation. Students are not permitted to eat or drink while in class to ensure masks stay in place. Students will be able to eat and drink outside of the classroom during scheduled breaks. Students unwilling to wear a mask as stipulated by Western policy and public health directives will be referred to the Dean, and such actions will be considered a violation of the student Code of Conduct.

### **Course Absences due to Daily COVID Screening Questionnaire:**

Missed assessments (e.g., presentations, essays, quizzes, tests, midterms, etc.) require formal academic considerations (typically self-reported absences and/or academic counselling). Methods for dealing with missed work and course content are at the discretion of the instructor(s). Students should be aware that some learning outcomes cannot be easily made up and may need to be completed in a subsequent year. Your instructor will provide you with further information as to how this applies within this course. Students who demonstrate a pattern of routinely missing coursework due to self-reported COVID symptoms, and therefore do not demonstrate mastery of the learning outcomes of the course, will not receive credit for the course.

### **Religious Accommodation**

Students should consult the University's list of recognized religious holidays, and should give reasonable notice in writing, prior to the holiday, to the Instructor and an Academic Counsellor if their course requirements will be affected by a religious observance. Additional information is given in the Western Multicultural Calendar:

<https://multiculturalcalendar.com/ecal/index.php?s=c-univwo>

## **16. Academic Policies**

The website for Registrar Services is <http://www.registrar.uwo.ca>.

In accordance with policy, <http://www.uwo.ca/its/identity/activatenonstudent.html>, the centrally administered e-mail account provided to students will be considered the individual's official university e-mail address. It is the responsibility of the account holder to ensure that e-mail received from the University at his/her official university address is attended to in a timely manner.

## Contingency plan for an in-person class pivoting to 100% online learning

In the event of a COVID-19 resurgence during the course that necessitates the course delivery moving away from face-to-face interaction, all remaining course content will be delivered entirely online, either synchronously (i.e., at the times indicated in the timetable) or asynchronously (e.g., posted on OWL for students to view at their convenience). The grading scheme will **not** change. Any remaining assessments will also be conducted online as determined by the course instructors.

## 17. Student Support Services

Please visit the Science & Basic Medical Sciences Academic Counselling webpage for information on add/drop courses, academic considerations for absences, appeals, exam conflicts, and many other academic related matters:

<https://www.uwo.ca/sci/counselling/>

Please contact the course instructor if you require lecture or printed material in an alternate format or if any other arrangements can make this course more accessible to you. You may also wish to contact Student Accessibility Services (SAS) at (519) 661-2147 if you have any questions regarding accommodations.

Western University is committed to a thriving campus as we deliver our courses in the mixed model of both virtual and face-to-face formats. We encourage you to check out the Digital Student Experience website to manage your academics and well-being:

<https://www.uwo.ca/se/digital/>

Learning-skills counsellors at the Student Development Centre (<http://www.sdc.uwo.ca>) are ready to help you improve your learning skills. They offer presentations on strategies for improving time management, multiple-choice exam preparation/writing, textbook reading, and more. Individual support is offered throughout the Fall/Winter terms in the drop-in Learning Help Centre, and year-round through individual counselling.

Students who are in emotional/mental distress should refer to Mental Health@Western ([http://www.health.uwo.ca/mental\\_health](http://www.health.uwo.ca/mental_health)) for a complete list of options about how to obtain help.

Additional student-run support services are offered by the USC:

<http://westernusc.ca/services>

## 18. Equity, Diversity, and Inclusion

Western is committed to the values of equity, diversity, and inclusion. In this class, we the instructors will try to highlight the accomplishments of a diverse group of scientists, and acknowledge that it is possible that there might be historical biases in the scientific theories due to the lens it was written, even though the material is primarily of scientific nature. Integrating a diverse set of experiences is

needed for a more comprehensive understanding of science. Issues of diversity in science will be discussed from time to time throughout this course. Furthermore, we strive to create a learning environment for everyone that supports equity, diversity, and inclusion. Please let us know if you any suggestions to help achieve an inclusive classroom.

## 19. Feedback and Suggestions

Student feedback is an important aspect of establishing a positive learning environment. Please feel free to provide feedback to your instructors in-person, email, or through OWL. Your feedback is welcomed and will remain confidential.

## 20. Course Schedule

Below is a tentative schedule of the topics covered throughout the year.

Class	Date	Topic	Assigned Readings	*Assessment
1	Sept 8 <sup>th</sup>	<ul style="list-style-type: none"> <li>• Introduction to the course and WISc mentors</li> <li>• Discussion of big revolutions in science</li> <li>• Assignment of group projects</li> </ul>		
2	Sept 22 <sup>nd</sup>	<ul style="list-style-type: none"> <li>• Scientific literacy skills: Writing Skills (Paul Schmidt – Writing Support Centre)</li> <li>• Discussion of preface and Ch 1 -2</li> </ul>	Kuhn: preface, Ch 1 -2	
3	Oct 6 <sup>th</sup>	<ul style="list-style-type: none"> <li>• Scientific literacy skills: Finding and evaluating scientific information (Western Libraries)</li> <li>• Paul Weigert (Visiting Speaker from Physics)</li> <li>• Discussion on Ch 3 -5</li> </ul>	Kuhn: Ch 3 -5	
4	Oct 20 <sup>th</sup>	<ul style="list-style-type: none"> <li>• Scientific literacy skills: Citation and References (Western Libraries)</li> <li>• Discussion of term paper</li> <li>• Discussion on Ch 6 -8</li> </ul>	Kuhn: Ch 6 -8	
<b>Fall Reading week (Nov 1<sup>st</sup> – 7<sup>th</sup> – no classes)</b>				
5	Nov 10 <sup>th</sup>	<ul style="list-style-type: none"> <li>• Scientific literacy skills: Peer evaluation</li> <li>• Discussion on Ch 9 -11</li> </ul>	Kuhn: Ch 9 – 11	<ul style="list-style-type: none"> <li>• Kuhn essay overview (Nov 10<sup>th</sup>)</li> </ul>

6	Nov 24 <sup>th</sup>	<ul style="list-style-type: none"> <li>Scientific revolution presentations</li> </ul>	No required reading	<ul style="list-style-type: none"> <li>Oral presentation</li> </ul>
7	Dec 1 <sup>st</sup>	<ul style="list-style-type: none"> <li>Discussion on Ch. 12-13</li> <li>Margret Campbell-Brown (Visiting Speaker from Physics)</li> </ul>	Kuhn: Ch 12-13	<ul style="list-style-type: none"> <li>Written assignment (due Dec 8<sup>th</sup>)</li> </ul>
<b>Midterm Exam Period (Dec 10<sup>th</sup>– 23<sup>rd</sup>)</b>				
8	Jan 5 <sup>th</sup>	<ul style="list-style-type: none"> <li>Scientific literacy skills: time and stress management and group work</li> <li>Assign topics and provide expectations for poster presentations</li> </ul>		
9	Jan 19 <sup>th</sup>	<ul style="list-style-type: none"> <li>Scientific literacy skills: academic integrity</li> <li>Discussion on Introduction and Ch 1</li> </ul>	Erickson: Introduction and Ch 1	
10	Feb 2 <sup>nd</sup>	<ul style="list-style-type: none"> <li>Scientific literacy skills: how to read an academic paper</li> <li>Discussion on Ch 2 – 3</li> </ul>	Erickson: Ch 2 – 3	
11	Feb 16 <sup>th</sup>	<ul style="list-style-type: none"> <li>Scientific literacy skills: poster basics</li> <li>Discussion on Ch 4 -5</li> </ul>	Erickson: Ch 4 -5	
<b>Winter Reading week (Feb 19<sup>th</sup> – 27<sup>th</sup> – no classes)</b>				
12	March 2 <sup>nd</sup>	<ul style="list-style-type: none"> <li>Scientific literacy skills: small-group feedback</li> <li>Discussion on Ch 6 -7</li> </ul>	Erickson: Ch 6 - 7	<ul style="list-style-type: none"> <li>Erickson essay Overview (due March 2<sup>nd</sup>)</li> </ul>
13	March 16 <sup>th</sup>	<ul style="list-style-type: none"> <li>Science and Society poster presentation</li> </ul>		<ul style="list-style-type: none"> <li>Poster presentations</li> </ul>
14	March 30 <sup>th</sup>	<ul style="list-style-type: none"> <li>Pedagogical research</li> <li>Discussion on Ch 8</li> </ul>	Erickson: Ch 8	<ul style="list-style-type: none"> <li>Written assignment (due March 30<sup>th</sup>)</li> </ul>
<b>Final Exam Period (Apr 4<sup>th</sup> – 30<sup>th</sup>)</b>				