

<b>Course ID:</b>	<b>Course Title:</b>	<b>Winter 2017</b>
SC 229	Scientific Writing and Review	Prerequisite: 6 credits in the sciences and EN 115
		Credits: 3

<b>Days:</b>	W/F	<b>Instructor:</b>	Stephan Bonfield	<b>First day of classes:</b>	Wed., Jan 4, 2017
<b>Time:</b>	2:30-3:45	<b>Email:</b>	s.bonfield@ucalgary.ca	<b>Last day to add/drop, or change to audit:</b>	Sun, Jan. 15, 2017
<b>Room:</b>	L2109	<b>Phone:</b>	E-mail is best	<b>Last day to request revised exam:</b>	Mon, Mar. 6, 2017
<b>Lab/ Tutorial:</b>	None	<b>Office:</b>	L2109	<b>Last day to withdraw from course:</b>	Fri, Mar. 17, 2017
		<b>Office Hours:</b>	By Request: Meeting, FaceTime, Skype or by phone anytime	<b>Last day to apply for coursework extension:</b>	Mon, Mar. 29, 2017
<b>Final Exam:</b>	None			<b>Last day of classes:</b>	Tue, April 11, 2017

**Course Description:**

This course will teach students the essential elements of scientific writing and literature analysis. Components of a scientific document will be examined. Different scientific propagation formats and documentation styles will be discussed, as well as the critical analysis of scientific publications.

The course is designed to introduce and develop students' abilities to use critical thinking, oral skills and laboratory writing in their daily work.

## Outline:

A review of thinking strategies, essential scientific precepts and common logical fallacies will be covered in the first unit. The second unit will give attention to cultivating effective oral presentation skills. The third unit will focus on writing a lab report, writing an abstract, putting together small sections of a paper such as Introduction and Methods sections (not in their entirety) and finally, how to write a grant proposal.

**UNIT 1:** Critical thinking is essential to the first steps in presenting data, whether in written or oral form. We will begin with logical argumentation and evaluation of claims, including four basic tests students will learn to use to evaluate arguments. We will follow with how to define a scientific question and gather data using critical thinking skills. From there, students will learn different strategies toward constructing a hypothesis, the central crux of study in the first month from which everything else in the course will develop. Next, we will review the core scientific precepts of hypothesis testing, i.e., verifiability, predictability and falsifiability. How to read and select data correctly will be carefully reviewed with crucial emphasis on the fairness of effectively representing the experiment. Data also require careful analysis so as to create an appropriate and representative sample and this will be discussed without necessarily moving into an elaborate discussion of quantitative methods. To conclude, how to accept or reject a null hypothesis will be reviewed. Length - 4 weeks.

**UNIT 2:** Oral skills presentations will include a discussion of how to present data effectively, directly, and in a lucid, interesting manner. Students will each present twice, first to a peer group for evaluation and then to the entire class. Students will prepare two presentations on different topics, one within their field and another outside their field. Length - 3 weeks.

**UNIT 3:** Critical writing will form the final section of the course and will be evaluated in three stages. First, the student will be given a scientific paper to read and then write an abstract. Second, students will be given instruction on how to write a literate, clear and straightforward lab report. First reports will be collected and evaluated with suggestions for improvements. A second report will be written and critically evaluated. Finally, for the third component to the Unit, students will be required to construct a brief introduction to a paper. Length - 5 weeks.

The final project will be a take-home assignment, in which each student must write and develop a research concept into a grant proposal, for which there will be adequate preparation and instruction given from the start of the course until the final week. A template will be given during the second month of the course, and a final concentrated unit in the last two weeks of class will give the students what they need to think through their final project.

## Textbook

THINK Critically, 3/E

Peter Facione and Carol Ann Gittens

ISBN-10: 0133909662 • ISBN-13: 9780133909661

©2016 • Pearson • Paper, 432 pp

Additional lab-writing PDFs will also be used, providing models to students for creating appropriate lab reports and abstracts.

## Expected Learning Outcomes:

Basic scientific fluency for all science graduates includes essential skills development in critical thinking, writing and speaking, including how to lucidly communicate the technical language of one's own chosen field. I have taught these skills multiple times over the years to lab students in different settings. Such skills are indispensable to surviving at every stage of a scientific career whether in university life or in the corporate world.

## Evaluation/Requirements:

1 - Critical thinking assignments - Evaluating claims, Verifiability/Falsifiability, readings

Assignments - 20%

2 - Oral presentations - two, each worth 12.5% = 25%

3 - Written assignments including abstract, lab reports and Article Introduction - 30%

Final Assignment (summation of everything learned) - Grant Proposal - 25%

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**Attendance:**

Please note that attendance at class is expected from each student. For each *unexcused absence*, a student will lose 2% of course mark without exception

**Course Schedule:**

**UNIT 1: January 4 - January 27**

**Definitions**

Hypothesis testing, i.e., verifiability, predictability and falsifiability.

Readings and Stories about Critical Thinking taken from the textbook: Assignments

**UNIT 2: February 1 - February 17**

Oral presentation skills and development

Presentations - round 1

Presentations - round 2

**UNIT 3: March 1 - April 7**

Abstract week 1

Abstract week 2

lab report week 1

lab report week 2

critical report – grant proposal 1

Introduction to a paper - grant proposal 2 - toward the final assignment

**Grade Summary:**

Percentage	Letter Grade	Grade Point	Descriptor
96-100A+	4.0	Outstanding*	
91-95 A	4.0		
86-90 A-	3.7	Excellent	
82-85 B+	3.3		
75-81 B	3.0		
72-74 B-	2.7	Good	
68-71 C+	2.3		
63-67 C	2.0		
60-62 C-	1.7	Satisfactory	
56-59 D+	1.3		
50-55 D	1.0	Minimal pass	
0-49 F	0.0	Fail	

Because of the nature of the Alpha 4.00 system, there can be no uniform University-wide conversion scale. The relationship between raw scores (e.g. percentages) and the resultant letter grade will depend on the nature of the course and the instructor’s assessment of the level of each class, compared to similar classes taught previously.

Please note that final grades will be available on student registration system. Printed grade sheets are not mailed out.

## Ambrose University Academic Policies:

### Communication

All students have received an Ambrose e-mail account upon registration. It is the student's responsibility to check this account regularly as the Ambrose email system will be the professor's instrument for notifying students of important matters (cancelled class sessions, extensions, requested appointments, etc.) between class sessions. If students do not wish to use their Ambrose accounts, they will need to forward all messages from the Ambrose account to another personal account.

### Registration

During the **Registration Revision Period** students may enter a course without permission, change the designation of any class from credit to audit and /or voluntary withdraw from a course without financial or academic penalty or record. Courses should be added or dropped on the student portal by the deadline date; please consult the List of Important Dates. After that date, the original status remains and the student is responsible for related fees.

Students intending to withdraw from a course after the Registration Revision Period must apply to the Office of the Registrar by submitting a "Request to Withdraw from a Course" form or by sending an email to the Registrar's Office by the **Withdrawal Deadline**; please consult the List of Important Dates on the my.ambrose.edu website. Students will not receive a tuition refund for courses from which they withdraw after the Registration Revision period. A grade of "W" will appear on their transcript.

Students wishing to withdraw from a course, but who fail to do so by the applicable date, will receive the grade earned in accordance with the course syllabus. A student obliged to withdraw from a course after the Withdrawal Deadline because of health or other reasons may apply to the Registrar for special consideration.

### Exam Scheduling

Students, who find a conflict in their exam schedule must submit a Revised Examination Request form to the Registrar's Office by the deadline date; please consult the List of Important Dates. Requests will be considered for the following reasons only: 1) the scheduled final examination slot conflicts with another exam; 2) the student has three final exams within three consecutive exam time blocks; 3) the scheduled final exam slot conflicts with an exam at another institution; 4) extenuating circumstances. Travel is not considered a valid excuse for re-scheduling or missing a final exam.

### Electronic Etiquette

Students are expected to treat their instructor, guest speakers, and fellow students with respect. It is disruptive to the learning goals of a course or seminar and disrespectful to fellow students and the instructor to use electronics for purposes unrelated to the course during a class session. Turn off all cell phones and other electronic devices during class. Laptops should be used for class-related purposes only. Do not use iPods, MP3 players, or headphones. Do not text, read, or send personal emails, go on Facebook or other social networks, search the internet, or play computer games during class. Some professors will not allow the use of any electronic devices in class. The professor has the right to disallow the student

to use a laptop in future lectures and/or to ask a student to withdraw from the session if s/he does not comply with this policy. Repeat offenders will be directed to the Dean. If you are expecting communication due to an emergency, please speak with the professor before the class begins.

### Academic Policies

It is the responsibility of all students to become familiar with and adhere to academic policies as stated in the Academic Calendar. Personal information (information about an individual that may be used to identify that individual) may be required as part of taking this class. Any information collected will only be used and disclosed for the purpose for which the collection was intended. For further information contact the Privacy Compliance Officer at [privacy@ambrose.edu](mailto:privacy@ambrose.edu).

### Extensions

Although extensions to coursework in the semester are at the discretion of the instructor, students may not turn in coursework for evaluation after the last day of the scheduled final examination period unless they have received permission for a course Extension from the Registrar's Office. Requests for course extensions or alternative examination time must be submitted to the Registrar's Office by the deadline date; please consult the List of Important Dates. Course extensions are only granted for serious issues that arise "due to circumstances beyond the student's control."

### Appeal of Grade

An appeal for change of grade on any course work must be made to the course instructor within one week of receiving notification of the grade. An appeal for change of final grade must be submitted to the Registrar's Office in writing and providing the basis for appeal within 30 days of receiving notification of the final grade, providing the basis for appeal. A review fee of \$50.00 must accompany the appeal. If the appeal is sustained, the fee will be refunded.

### Academic Integrity

We are committed to fostering personal integrity and will not overlook breaches of integrity such as plagiarism and cheating. Academic dishonesty is taken seriously at Ambrose University as it undermines our academic standards and affects the integrity of each member of our learning community. Any attempt to obtain credit for academic work through fraudulent, deceptive, or dishonest means is academic dishonesty. Plagiarism involves presenting someone else's ideas, words, or work as one's own. Plagiarism is fraud and theft, but plagiarism can also occur by accident when a student fails or forgets to acknowledge to another person's ideas or words. Plagiarism and cheating can result in a failing grade for an assignment, for the course, or immediate dismissal from the university college. Students are expected to be familiar with the policies in the current Academic Calendar that deal with plagiarism, cheating, and the penalties and procedures for dealing with these matters. All cases of academic dishonesty are reported to the Academic Dean and become part of the student's permanent record.

**Note:** Students are strongly advised to retain this syllabus for their records.