

## Term Information

Effective Term Autumn 2020  
*Previous Value* Summer 2012

## Course Change Information

**What change is being proposed? (If more than one, what changes are being proposed?)**

To add the option to offer the class 100% online (DL)

**What is the rationale for the proposed change(s)?**

Reflects student demands and accessibility for students

**What are the programmatic implications of the proposed change(s)?**

(e.g. program requirements to be added or removed, changes to be made in available resources, effect on other programs that use the course)?

none

**Is approval of the request contingent upon the approval of other course or curricular program request?** No

**Is this a request to withdraw the course?** No

## General Information

|                                      |  |
|--------------------------------------|--|
| Course Bulletin Listing/Subject Area | Earth Sciences   |
| Fiscal Unit/Academic Org             | School of Earth Sciences - D0656   |
| College/Academic Group               | Arts and Sciences  |
| Level/Career                         | Undergraduate  |
| Course Number/Catalog                | 1108   |
| Course Title                         | Gemstones  |
| Transcript Abbreviation              | Gemstones  |
| Course Description                   | General introduction to gemstones, including the origin of gems, identification techniques, and the history of important gems. Precious metals are also discussed. |
| Semester Credit Hours/Units          | Fixed: 3   |

## Offering Information

|  |  |
|--|--|
| Length Of Course   | 14 Week, 12 Week, 8 Week, 7 Week, 6 Week, 4 Week |
| Flexibly Scheduled Course  | Sometimes  |
| Does any section of this course have a distance education component? | Yes  |
| Is any section of the course offered                                 | 100% at a distance                               |
| <i>Previous Value</i>  | <i>No</i>  |
| Grading Basis  | Letter Grade                                     |
| Repeatable   | No   |
| Course Components  | Lecture  |
| Grade Roster Component   | Lecture  |
| Credit Available by Exam   | No   |
| Admission Condition Course   | No   |
| Off Campus   | Never  |
| Campus of Offering   | Columbus, Lima, Mansfield, Marion, Newark        |

## Prerequisites and Exclusions

### Prerequisites/Corequisites

### Exclusions

Not open to students with credit for EarthSci 108 or GeolSci 108.

### Electronically Enforced

No

## Cross-Listings

### Cross-Listings

## Subject/CIP Code

### Subject/CIP Code

40.0601

### Subsidy Level

General Studies Course

### Intended Rank

Freshman, Sophomore, Junior, Senior

## Requirement/Elective Designation

### General Education course:

Physical Science

## Course Details

### Course goals or learning objectives/outcomes

- Understand the geological processes and the geological formation environments of gems and precious stones.
- Learn basic physical properties, identification methods including the theoretical basis for such methods, and uses of gemstones.
- Develop the skills to evaluate commercially available gems and acquire an understanding of gem attributes to make informed decisions as consumers.
- Learn how the science of gemology has changed over time and understand the technological developments applied to identifying, enhancing, and synthesizing gemstones.
- Learn the environmental and human impacts of gemstone exploration, mining, and trade, including illegal trade and conflict gems (e.g. Africa's "blood" diamonds).
- Learn the historical significance of legendary gems, their fate and that of their owners.
- Understand how gemstones' role in society has been impacted by the industry, the entertainment world and, more recently, by social media.

### *Previous Value*

### Content Topic List

- Processes that produce gemstones
- Physical, chemical, and optical properties of minerals
- Diamonds and their simulants
- Colored gemstones
- Precious metals
- Organic gemstones and fossils

### Sought Concurrence

No

**COURSE CHANGE REQUEST**  
1108 - Status: PENDING

Last Updated: Haddad,Deborah Moore  
01/31/2020

**Attachments**

- Earth Sciences 1108 Millan\_ASCTech.pdf: Tech evaluation  
*(Other Supporting Documentation. Owner: Panero,Wendy R)*
- Gemstones Assessment Plan.docx: assessment plan  
*(GEC Course Assessment Plan. Owner: Panero,Wendy R)*
- ES 1108 Syllabus Autumn 2018.docx: syllabus: in person delivery  
*(Syllabus. Owner: Panero,Wendy R)*
- ES1108DLSyllabus.pdf: syllabus: DL  
*(Syllabus. Owner: Panero,Wendy R)*

**Comments**

**Workflow Information**

| Status           | User(s)   | Date/Time           | Step                   |
|------------------|---|---------------------|------------------------|
| Submitted        | Panero,Wendy R  | 01/31/2020 01:53 PM | Submitted for Approval |
| Approved         | Panero,Wendy R  | 01/31/2020 01:53 PM | Unit Approval          |
| Approved         | Haddad,Deborah Moore  | 01/31/2020 02:26 PM | College Approval       |
| Pending Approval | Jenkins,Mary Ellen Bigler<br>Hanlin,Deborah Kay<br>Oldroyd,Shelby Quinn<br>Vankeerbergen,Bernadette Chantal | 01/31/2020 02:26 PM | ASCCAO Approval        |

# **GEMSTONES**

*Autumn Semester 2018*

**Earth Sciences 1108**

**Lecture:** Tu, Th 9:35-10:55 a.m.

100 Mendenhall Laboratory

**Instructor:** Prof. Loren Babcock

**Office:** 311 Mendenhall Laboratory

**Office hours:** Tu, Th 11:00-12:00

or by appointment

**Email:** babcock.5@osu.edu

**Textbook:** Babcock, L. E. 2009. *Gemstones and Precious Metals. Revised Edition.* John Wiley & Sons, 247 p. ISBN: 978-0-470-48135-6.

**Prerequisite:** None

**Course characteristics:** GE Natural Science: Physical Science

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| <b>DATES</b> | <b>TOPICS AND ASSOCIATED READINGS (subject to change)</b>                                     |
|--------------|---|
| Aug 21, 23   | Introduction<br>What are gems and what makes them desirable?                                  |
| Aug 28, 30   | Characteristics of gems<br>Processes of gem formation<br>Reading: Babcock, Chapters 1, 2      |
| Sept 4, 6    | Processes of gem formation (continued)<br>Crystals<br>Reading: Babcock, Chapter 3             |
| Sept 11, 13  | Physical, chemical, and optical properties of gems<br>Reading: Babcock, Chapter 3             |
| Sept 18, 20  | Physical, chemical, and optical properties of gems (continued)<br>Reading: Babcock, Chapter 3 |
| Sept 25, 27  | Diamonds and diamond simulants<br>Reading: Babcock, Chapter 4                                 |
| Oct 2, 4     | Diamonds and diamond simulants<br>Reading: Babcock, Chapter 4                                 |
| Oct 9        | <b>MIDTERM EXAM</b> , 9:35-10:55 a.m., 100 Mendenhall Lab                                     |
| Oct 11-12    | Autumn Break (no classes)   |
| Oct 16, 18   | Color in gems   |

- Colored stones: corundum, beryl  
Reading: Babcock, Chapter 5 (pages 53-60)
- Oct 23, 25 Colored stones: topaz, zircon, chrysoberyl, etc.  
Reading: Babcock, Chapter 5 (pages 61-67)
- Oct 30, Nov 1 Colored stones (continued)  
Reading: Babcock, Chapter 5 (pages 61-67)
- Nov 6 No class
- Nov 8 Colored stones: rocks and rock-forming minerals  
Reading: Babcock, Chapter 5 (pages 68-99)
- Nov 13, 15 Colored stones: rocks and rock-forming minerals (continued)  
Reading: Babcock, Chapter 5 (pages 68-99)
- Nov 20 Precious metals: gold, silver, platinum  
Reading: Babcock, Chapter 7
- Nov 21-23 Thanksgiving Break (no classes)
- Nov 27, 29 Organic gems and fossils: pearl, amber, petrified wood, ammolite, etc.  
Reading: Babcock, Chapter 6
- Dec 3 Term project due**
- Dec 4 Organic gems and fossils (continued)
- Dec 7 (Friday) FINAL EXAM (comprehensive): 10:00-11:45 a.m.,  
100 Mendenhall Lab**

### ***Objectives***

This course is an introduction to the study of gemstones and precious metals. The course provides you with some background in Earth science and biology, an understanding of Earth materials and processes, technology associated with gem and metal production, and the roles that Earth materials have played in human history. This is definitely a science course, but the science is presented in a relevant, palatable manner. At times the science overlaps with other subject matter. Gemology touches upon a broad range of scientific and societal matters. Discussions will at times be centered on science, and at other times they will extend to related areas of human endeavor, including economic, cultural, political, and human rights concerns. Some discussion will extend to pop culture. Together, the information presented will help you to become better informed citizens, to help you understand the context of some important historical and current matters, and to help you become better prepared to address current and future societal issues.

Understanding important aspects of the Earth system, and developing the curiosity to make learning a lifelong process are key objectives of this course. Specifically, at the end of the course, you will:

- Understand the major geologic and biologic materials and processes involved in the formation of gemstones and precious metals.
- Understand the most important physical and chemical properties of gem-forming minerals, and how these properties are used to identify gems.
- Be able to identify many of the major natural and synthetic gemstones.
- Understand the scientific underpinnings for, and practical application of, techniques of cutting and polishing gems.
- Have a better awareness of the relationship between science and society from an Earth system perspective.
- Develop an appreciation of the role that gems and precious metals have played in human history.
- Have a better awareness of the interrelationships among scientific disciplines, and the role of science in everyday life.

***How this course meets the general principles of the GE Model Curriculum (Natural Science: Physical Science Category)***

This course will help you to understand and appreciate some of the basic principles and facts that are central to interpreting Earth's development through time. You are expected to develop an understanding of:

- The origins of rocks, minerals, and organic materials (including fossils), especially as related to tectonic and sedimentary environments.
- The concept of geologic time.
- Techniques used in the discovery process in the Earth sciences.
- Historical origins of key concepts relating to plate tectonics, the origins of fossils, and the origins of sedimentary deposits, together with how those concepts are related to the search for, and exploitation of, gems.
- The interaction between the science of gemology and technology used to produce synthetic or simulated versions of gems, and technology used to enhance natural stones.
- The social and economic impact of gemstone deposits, and the impact of technology resulting in the production of synthetics.

***General information about course content***

This course includes a considerable amount of terminology, and some of it may be new to you. *You are expected to know and understand the terminology.* Most of the essential terms are emphasized using italics or other means, and defined both in the Powerpoints and in your textbook. The important terms are emphasized and discussed during lectures.

***Conduct in the course and academic misconduct policy***

According to university policy, you are expected to maintain a high standard of academic performance and to protect the integrity of your work at all times. All Ohio State University students are subject to the provisions of The Ohio State University Code of Student Conduct, which is available online at [http://studentaffairs.osu.edu/resource\\_csc.asp](http://studentaffairs.osu.edu/resource_csc.asp).

If you have special needs, please contact the instructor so that he can ensure that you are provided the opportunity to perform coursework to the best of your ability.

### *Exams and grades*

- The final grade will be based on one midterm exam, one comprehensive final exam, a term project, and attendance. The midterm and final exams are closed-book exams. Attendance is assessed using unannounced quizzes (open book, open notes).
- Material on the exams will be drawn from the lectures and the textbook. In the event of an absence, you are responsible for any information you missed.
- Final grades will be calculated as follows:

|              |   |     |
|--------------|---|-----|
| Quizzes      | = | 10% |
| Midterm Exam | = | 30% |
| Final exam   | = | 40% |
| Term project | = | 20% |

### *How to study for Gemstones exams*

The three most frequently asked questions in this course are some variation of: 1, How do I study for the exams? 2, What material will be covered on the exams? and 3, How specific will the questions and answers be on the exams? Here are the answers to those questions.

*How and what to study.*—The exams revolve around three things: (1) **principles** (covered in the early days of the course and then repeated by way of examples afterward); (2) **definitions** (many of the answers to questions are simply definitions); and (3) **themes** that have been covered over and over (such as phenomena in gems, color, geologic origin, origin of names). The questions are derived from material *emphasized* in the lectures. In general, these are the things *highlighted or italicized on powerpoints*. Moreover, *answers to each of the questions have been addressed at least three times in lecture* (not necessarily all on the same day). Most of the information is also emphasized in the book. The information tested will be largely overarching matters and general information, central information applicable broadly across the subject matter, development of formative concepts, etc.

A sheet of terms considered important in this course is provided in this syllabus. You should know and understand these terms for the exams. Keep in mind that some of the terms will not be covered in lecture until after the first exam. Where that is the case, those terms will not be on the first exam. The final exam is comprehensive, so you must know and understand all of the terms (and perhaps a few others) by the time of the final exam.

It is important that you begin preparing for the exams well in advance of the exam dates. Few people can cram the range of information covered in this course beginning the night before the exam and hope to do well on the tests. One purpose of the quizzes is to get you thinking about the course material every week so that you will assimilate the important information bit by bit as it is presented to you. That will make reviewing for the exams an easier task.

*What types of 'specific' information are essential.*—The exams do not cover much trivia such as places and dates, SG (specific gravity) values, and RI (refractive index) values. There are a few instances where “trivia” is covered, and they are highlighted in lecture. Among the more specific types of information that you are expected to know there are general themes that apply broadly across the subject matter (such as coloration, source of coloration, crystal habit, streak, and industrial applications of gem minerals). Only in rare examples are names of individual gem specimens or their history important (exceptions would be the most obvious ones, such as the Hope Diamond and Cullinan Diamond, and then only generalities).

It should be fairly obvious what information is and is not important enough to be included on a gemstones exam because of the way important information is emphasized, highlighted, and repeated. Things emphasized in lectures are likely to be on the exams. Things that are glossed over in lecture or that the instructor said was not important for exams will not be on exams. The questions posed during quizzes are of the same general nature and content as exam questions, and provide a ‘warm-up’ for the exams. Here are some examples of what may or may not be on exams: (1) Do you need to know terms emphasized in lecture such as reflection and refraction? Yes. (2) Do you need to know the colors of gems that we discuss? Yes. (3) Do you need to know the RIs and SGs of gems that we discuss. In most cases, no. However, you should know the RIs of quartz, the SG of diamond, and the SG of amber. (4) Do you need to know that the Hope Diamond has some history associated with the French monarchy and the French Revolution? Yes. Do you need to know when the French Revolution began? Not for the gemstones exam; it is assumed that you already know that date because of its importance in Western history. (5) Do you need to know each individual owner of the Hope Diamond? No, but you should know for whom the stone is named. (6) Do you need to know where the Hope Diamond is now? Yes. (7) Do you need to know what the DeBeers organization is known for? Yes (there are multiple answers to that question). (8) Do you need to know who founded DeBeers, who managed the company in key stages of world history, and other notable activities in which those persons participated? Yes. (9) Do you need to know the date that DeBeers was founded, and dates when changes in company policy occurred? No. (10) Do you need to know how DeBeers mines natural resources and where DeBeers has its major operations? Yes.

### ***Term project***



- The term project is a short (one-page) composition on a gemstone, either a specific gem variety or an individual specimen. The topic is rather open, so you are encouraged to be creative and discover something new (to you) about the world of gems, or to develop insight into how gems relate to your life, your work, or your future plans. The term project is expected to be something substantial, and a genuine intellectual achievement, something that you have put some time and brainpower into producing. The composition may be written, or a piece of artwork, but it must be original, not something simply lifted from the Web, from a book, or from some other source. If you choose to compose an artistic piece, please include a short, written narrative (in which case a second page might be needed). Plan ahead to complete the project.
- Your composition must include, at a minimum, these types of information to receive full credit:
  - Name of the stone
  - Chemical composition
  - Where it is (or was) found; alternatively, if it is synthetic, where or how it is or was manufactured
  - What makes it special (e.g., special to you, economically important, or historically important)
- If you need guidance about the project, suggestions for topics, etc., please talk to the instructor about it.



# **GEMS SYLLABUS: EARTHSC 1108**

## **GEMSTONES**

### **FALL 2020**

## **Course overview**

### **Instructor**

Instructor: Dr. Cristina Millan

Email address: millan.2@osu.edu

Office hours: Days & Times:

Mondays 9:00 am to 11:00 am AND Thursdays: 3:00 pm to 5:00 pm

Through CarmenZoom at <https://osu.zoom.us/officehour>

### **Course Description**

EARTHSC 1108 (Gemstones) is a 3-credit hour, 100% distance learning general education (GE) course on the science of gemstones. The instruction format for the course is in lecture form. This is an introductory class that covers the geological processes that form and concentrate gems, their physical properties and identification methods, gemstones' commercial attributes, gemstones enhancement and synthesis, the environmental and human impacts of gemstone mining, the historical significance of important gems, and the role of gemstones in society.

### **GE Categories and Course Learning Outcomes**

This course fulfills the goals and learning objectives of the GE Category of Natural Science (Physical Science).

Physical Science Goals:

Students understand the principles, theories, and methods of modern science, the relationship between science and technology, the implications of scientific discoveries and the potential of science and technology to address problems of the contemporary world.

Physical Science Expected Learning Outcomes:

- Students understand the basic facts, principles, theories and methods of modern science.
- Students understand key events in the development of science and recognize that science is an evolving body of knowledge.

- Students describe the inter-dependence of scientific and technological developments.
- Students recognize social and philosophical implications of scientific discoveries and understand the potential of science and technology to address problems of the contemporary world.

By the end of this course, students should successfully be able to:

- Understand the geological processes and the geological formation environments of gems and precious stones.
- Learn basic physical properties, identification methods including the theoretical basis for such methods, and uses of gemstones.
- Develop the skills to evaluate commercially available gems and acquire an understanding of gem attributes to make informed decisions as consumers.
- Learn how the science of gemology has changed over time and understand the technological developments applied to identifying, enhancing, and synthesizing gemstones.
- Learn the environmental and human impacts of gemstone exploration, mining, and trade, including illegal trade and conflict gems (e.g. Africa's "blood" diamonds).
- Learn the historical significance of legendary gems, their fate and that of their owners.
- Understand how gemstones' role in society has been impacted by the industry, the entertainment world and, more recently, by social media.

## Course materials

There is no required textbook for this course. All course content will be delivered by the instructor through Carmen (the OSU learning management system), including news and journal articles, website links, and short-lecture and feature-length videos. YouTube videos are embedded and can be watched directly from Carmen. Links to the OSU Secured Media Library are provided for assigned feature-length videos.

Other course materials may include (but are not limited to):

- Selected readings from the book *Gemstones of the World*, 5<sup>th</sup> ed. by Walter Schumann, and from the book *Gemology*, 2<sup>nd</sup> ed. by Hurlbut & Kammerling.
- Excerpts from *Rock & Gem Magazine* from the Beckett Media & The Journal of Gemmology from The Gemmological Association of Great Britain Gem-A.
- Selected articles from the Gemological Institute of America (GIA) website and the American Gem Society website.
- Selected videos and articles from the American Museum of Natural History and the Smithsonian website.
- Selected articles from the New York Times, BBC news and other journalistic media.
- Feature length documentary *The Diamond Deception* by NOVA.
- Excerpts from feature length documentary *Treasures of the Earth: Gems* by PBS.

### Quizzes:

All quizzes will be delivered through Carmen. Quiz format will be 15 questions that can be multiple choice, true/false, fill-in the blank, ordering and matching. You can take the quizzes anytime during its weekly window. Once you start the quiz you will have 30 minutes to complete it. Each quiz can be taken twice and only the higher quiz score will be recorded.

### Exams:

The midterm exam will cover all the material introduced in the class from week 1 through 7. The final exam is not comprehensive and will cover all the material introduced in the class from week 9 through 16. Exams format will be 100 questions that can be multiple choice, true/false, fill-in the blank, ordering and matching. Exams can be taken anytime during the exam week window. Once you start an exam you will have 1.5 hours to complete it. Each exam can be taken only once.

### Assignments:

Digital posters and short papers: Topics will be chosen by students from a list provided by the instructor. Assignments in this format should be no more than 1 page in length. Resources for the research must be drawn from class lectures and assigned readings and from videos presented in class. Students will be asked to use one additional resource of their choice and provide appropriate citations. Discussion board assignments will focus on a contemporary topic chosen by the instructor. Students create an original post and respond to the other students' posts. Students must ensure they make a strong point in their posts in 4-6 sentences. Resources for these assignments are newspapers, digital news outlets and videos.

All assignments will be graded based on a 4 point system: 0 (no participation), 1 (did not do the reading/research but made a try at answering), 2 (unclear, misunderstood or poor grammar), 3 (good but unorganized, inadequate grammar), and 4 (organized, good grammar, clear thinking, and original).

## Course technology

For help with your password, university e-mail, Carmen, or any other technology issues, questions, or requests, contact the OSU IT Service Desk. Standard support hours are available at <https://ocio.osu.edu/help/hours>, and support for urgent issues is available 24x7.

- **Self-Service and Chat support:** <http://ocio.osu.edu/selfservice>
- **Phone:** 614-688-HELP (4357)
- **Email:** [8help@osu.edu](mailto:8help@osu.edu)
- **TDD:** 614-688-8743

### Baseline technical skills necessary for online courses

- Basic computer and web-browsing skills
- Navigating Carmen

## Technology skills necessary for this specific course

- CarmenZoom text, audio, and video chat
- Recording a slide presentation with audio narration
- Recording, editing, and uploading video

## Necessary equipment

- Computer: current Mac (OS X) or PC (Windows 10) with high-speed internet connection
- Webcam: built-in or external webcam, fully installed
- Microphone: built-in laptop or tablet mic or external microphone
- Apple iPad® Pro provided by the University can substitute all the above equipment (NOTE: Adobe Flash Player is not supported by IOS devices)

## Necessary software

- [Microsoft Office 365 ProPlus](#) All Ohio State students are now eligible for free Microsoft Office 365 ProPlus through Microsoft's Student Advantage program. Each student can install Office on five PCs or Macs, five tablets (Windows, iPad® and Android™) and five phones.
  - Students are able to access Word, Excel, PowerPoint, Outlook and other programs, depending on platform. Users will also receive 1 TB of OneDrive for Business storage.
  - Office 365 is installed within your BuckeyeMail account. Full instructions for downloading and installation can be found <https://ocio.osu.edu/kb04733>.
- Free Adobe Acrobat Reader: <https://get.adobe.com/reader>
- Free Adobe Flash Player: <https://get.adobe.com/flashplayer>

# Grading and faculty response

## Grades

| Assignment or category | Points |
|------------------------|--------|
| Midterm                | 20     |
| Final Exam             | 20     |
| Quizzes (x6)           | 30     |
| Assignments (x5)       | 30     |
| TOTAL                  | 100    |

See course schedule below, for due dates

## Extra Credit Opportunities

There will be 4 extra credit assignments during the course in the form of a student survey (pre-post test) and a self-assessment survey. Extra credit assignments are fully executed online. Maximum amount of extra credit is 4% total.

## Late assignments

Access to exams, quizzes and activities will **NOT** be granted after the due dates indicated unless you have a documentable medical excuse. Plan ahead to avoid connectivity issues and allow adequate time to complete each item (know your due dates!!!). Computer and submission issues (because of trying to submit an hour or two prior to the deadline when the traffic is high) are not a valid excuse. Please submit work in readable formats, doc, docx or pdf. **ALL** assignments must be submitted through Carmen. No work will be accepted by e-mail.

## Grading scale

93–100: A  
90–92.9: A-  
87–89.9: B+  
83–86.9: B  
80–82.9: B-  
77–79.9: C+  
73–76.9: C  
70–72.9: C-  
67–69.9: D+  
60–66.9: D  
Below 60: E

## Faculty feedback and response time

I am providing the following list to give you an idea of my intended availability throughout the course. (Remember that you can call **614-688-HELP** at any time if you have a technical problem.)

### Grading and feedback

For assignments, you can generally expect feedback within **7 business days**.

### E-mail

I will reply to e-mails within **24 hours on school days**.

### Discussion board

I will check and reply to messages in the discussion boards every **24 hours on school days**.

# Attendance, participation, and discussions

## Student participation requirements

Because this is a distance-education course, your attendance is based on your online activity and participation. The following is a summary of everyone's expected participation:

- **Logging in: AT LEAST ONCE PER WEEK**  
Be sure you are logging in to the course in Carmen each week, including weeks with holidays or weeks with minimal online course activity. (During most weeks you will probably log in many times.) If you have a situation that might cause you to miss an entire week of class, discuss it with me *as soon as possible*.
- **Office hours: FLEXIBLE**  
If you are required to discuss an assignment with me, please contact me at the beginning of the week if you need a time outside my scheduled office hours.

## Other course policies

### Academic integrity policy

#### Policies for this online course

- **Quizzes and exams:** You must complete the quizzes, midterm and final exams yourself, without any external help or communication.
- **Written assignments:** Your written assignments, including discussion posts, should be your own original work.
- **Falsifying research or results:** All research you will conduct in this course is intended to be a learning experience; you should never feel tempted to make your results or your library research look more successful than it was.

#### Ohio State's academic integrity policy

**Academic misconduct will not be tolerated.** The Ohio State University's *Code of Student Conduct* (Section 3335-23-04) defines academic misconduct as: "Any activity that tends to compromise the academic integrity of the University, or subvert the educational process." Examples of academic misconduct include (but are not limited to) plagiarism, collusion (unauthorized collaboration), copying the work of another student, and possession of unauthorized materials during an examination. Ignorance of the University's *Code of Student Conduct* is never considered an "excuse" for academic misconduct, so I recommend that you review the *Code of Student Conduct* and, specifically, the sections dealing with academic misconduct.

**If I suspect that a student has committed academic misconduct in this course, I am obligated by University Rules to report my suspicions to the Committee on Academic Misconduct.** If COAM determines that you have violated the University's *Code of Student Conduct* (i.e., committed academic misconduct), the sanctions for the misconduct could include a failing grade in this course and suspension or dismissal from the University.

If you have any questions about the above policy or what constitutes academic misconduct in this course, please contact me.

## **Copyright disclaimer**

The materials used in connection with this course may be subject to copyright protection and are only for the use of students officially enrolled in the course for the educational purposes associated with the course. Copyright law must be considered before copying, retaining, or disseminating materials outside of the course.

## **Trigger warning**

Some contents of this course may involve media that may be triggering to some students due to descriptions of and/or scenes depicting acts of violence, acts of war, or sexual violence and its aftermath. If needed, please take care of yourself while watching/reading this material.

## **Accessibility accommodations for students with disabilities**

### **Requesting accommodations**

The University strives to make all learning experiences as accessible as possible. If you anticipate or experience academic barriers based on your disability (including mental health, chronic or temporary medical conditions), please let me know immediately so that we can privately discuss options. To establish reasonable accommodations, I may request that you register with Student Life Disability Services. After registration, make arrangements with me as soon as possible to discuss your accommodations so that they may be implemented in a timely fashion.

SLDS contact information: [slds@osu.edu](mailto:slds@osu.edu); 614-292-3307; [slds.osu.edu](http://slds.osu.edu); 098 Baker Hall, 113 W. 12th Avenue.



## Accessibility of course technology

This online course requires use of Carmen (Ohio State's learning management system) and other online communication and multimedia tools. If you need additional services to use these technologies, please request accommodations with your instructor.

- [Carmen accessibility](#)
- Streaming audio and video

## Academic services

For an overview and contact information for student services offered on the OSU main campus go to <http://ssc.osu.edu>.

For an overview and contact information for the student academic services offered on the OSU main campus go to <http://advising.osu.edu/welcome.shtml>.

## Your mental health!

A recent American College Health Survey found stress, sleep problems, anxiety, depression, interpersonal concerns, death of a significant other and alcohol use among the top ten health impediments to academic performance. Students experiencing personal problems or situational crises during the quarter are encouraged to contact the College of Pharmacy Office of Student Services in room 150 Parks Hall (614-292-5001) OR OSU Counseling and Consultation Services (614-292-5766) for assistance, support and advocacy. This service is free and confidential.

## Course schedule (tentative)

| Week | Dates | Topics   | Additional Assigned readings   |
|------|-------|--|--|
| 1    | 8/25  | Introduction to Gemstones<br>Gems Physical Properties                    | Schumann (pp): 8-12, 20-26   |
| 2    | 8/31  | Gems Physical Properties (cont.)   | Schumann (pp): 30-33, 48-49  |
| 3    | 9/7   | Gemstones Crystal Chemistry<br>Crystal Systems                           | Hurlburt & Kammerling (pp): 18-22<br>Schumann (pp): 14-17  |
| 4    | 9/14  | Gemstones Crystal Chemistry<br>Crystal Systems (cont.)                   | Hurlburt & Kammerling (pp): 22-30  |
| 5    | 9/21  | Interaction of Light w. Gemstones  | Hurlburt & Kammerling (pp): 82-88<br>Schumann (pp): 36, 40-41, 48-49   |
| 6    | 9/28  | Refraction, Isotropy<br>Polarize Light & Crystals                        | Schumann (pp): 31-33, 44-49<br>Hurlburt & Kammerling (pp): 74-79   |
| 7    | 10/5  | Color, Spectra, Pleochroism<br>Optical Phenomena                         | Schumann (pp): 52-55<br>Hurlburt & Kammerling (pp): 108-109  |
| 8    | 10/12 | *****Autumn Break*****   |  |
| 9    | 10/19 | Geological Processes that Forms Gems                                     | Schumann (pp): 14, 61-67<br>Hurlburt & Kammerling (pp): 7-17<br>Article: <a href="https://www.nytimes.com/2017/12/11/science/gemstones-diamonds-sapphires-rubies.html">https://www.nytimes.com/2017/12/11/science/gemstones-diamonds-sapphires-rubies.html</a>   |
| 10   | 10/26 | Diamonds: Occurrence, Production<br>& Trade, Conflict ("Blood") Diamonds | Schumann (pp): 86-90<br>Video: The Diamond Deception   |
| 11   | 11/2  | Rock Forming Minerals as Gems  | Schumman (pp): 132-162   |
| 12   | 11/9  | Rock Forming Minerals as Gems (cont.)<br>Organic Gems                    | Schumman (pp): 132-162, 250-253<br>Video: Treasures of the Earth: Gems   |
| 13   | 11/16 | Gem Enhancement & Synthesis<br>Imitations and Simulants                  | Schumman (pp): 266-274<br>Article: <a href="https://www.ganoksin.com/article/gem-creation-enhancement">https://www.ganoksin.com/article/gem-creation-enhancement</a>   |
| 14   | 11/23 | *****Thanksgiving Break*****   |  |
| 15   | 11/30 | Gemstone Uses, Trade & Commerce<br>Gemstones in Human History            | Article: <a href="https://www.gemselect.net/gemselect-tech-industry-gems.php">https://www.gemselect.net/gemselect-tech-industry-gems.php</a><br>Article: <a href="https://www.nytimes.com/2016/03/19/fashion/book-jewelry.html?searchResultPosition=1">https://www.nytimes.com/2016/03/19/fashion/book-jewelry.html?searchResultPosition=1</a> |
| 16   | 12/7  | Environmental & Societal Impacts of<br>Gem Mining & Industry             | Article: <a href="https://www.dailyinfographic.com/gem-mining">https://www.dailyinfographic.com/gem-mining</a><br>Article: <a href="https://blog.nationalgeographic.org/2012/01/12/conservation-gemstones-beyond-fair-trade">https://blog.nationalgeographic.org/2012/01/12/conservation-gemstones-beyond-fair-trade</a>                       |
| 17   | 12/11 | <b>Finals Week</b>   |  |

## Important deadlines (tentative)

| Week | Dates | Exams, Quizzes & Assignments Due  |
|------|-------|---|
| 1    | 8/25  | Quiz: Syllabus (Extra Credit)   |
| 2    | 8/31  | Pre-Test on Gemstone GE Concepts (Extra Credit)   |
| 3    | 9/7   |   |
| 4    | 9/14  | Quiz 1: Physical Properties & Crystal Chemistry   |
| 5    | 9/21  | Assignment 1: Digital Poster on Physical Properties   |
| 6    | 9/28  | Quiz 2: Interaction of Gems with Light  |
| 7    | 10/5  | Assignment 2: Short Paper on Optical Phenomena  |
| 8    | 10/12 | <b>MIDTERM</b>  |
| 9    | 10/19 | Quiz 3: Geological Processes that Form Gems   |
| 10   | 10/26 | Assignment 3: Diamond Deception Movie<br>Discussion Board & Questionnaire                               |
| 11   | 11/2  | Quiz 4: Diamonds  |
| 12   | 11/9  |   |
| 13   | 11/16 | Quiz 5: Rock Forming & Organic Gems   |
| 14   | 11/23 | Quiz 6: Enhancement, Synthesis & Fakes  |
| 15   | 11/30 | Assignment 4: Digital Poster on Gemstone Uses   |
| 16   | 12/7  | Assignment 5: Environmental & Societal Impacts<br>Discussion Board                                      |
| 17   | 12/11 | Post-Test on Gemstone GE Concepts (Extra Credit)<br>Self-Assessment (Extra Credit)<br><b>FINAL EXAM</b> |

## **GEC COURSE ASSESSMENT PLAN FOR EARTHSCI 1108: GEMSTONES**

### **INTRODUCTION**

Here we present the assessment plan for a 3-credit hour, 100% distance learning general education (GE) course on the science of gemstones. Gemstones (EarthSci 1108) meets the University Bachelor of Arts GEC requirement as a 'stand-alone' course. We would like to initiate this course in the Arts and Sciences College, School of Earth Sciences, in the autumn semester of 2020. This course is designed to align with the GE category of Natural Science (Physical Science) goals and learning outcomes.

### **COURSE DESCRIPTION**

This course provides a basic introduction to gems to include: the geological processes that form and concentrate gemstones, their physical properties and identification methods, gemstones commercial attributes, gem enhancement and synthesis, the environmental and human impacts of mining, the historical significance of gemstones in general and the history of important gems in particular, and the role of gems in society.

The course will be 3-credit hours and delivered 100% as an online class. In order to check for any potential logistical, technical and/or instructional issues that may arise from this first-time course delivered in an online format, a trial run with less than 30 students is expected to be offered during autumn 2020 semester. The class will then be taught in subsequent semesters with no student number restrictions.

In its current form and for the next academic year the foundation of Natural Science is fully met with: (1) a presentation of the physical and chemical attributes of gems, and how these properties are responsible for gemstones' dazzling appearance and universal appeal; (2) a presentation of the geological processes that form and concentrate gems in the Earth's crust, and how humans have exploited these processes over millennia to bring gemstones within everyone's reach; (3) a presentation of old and new scientific techniques to enhance, synthesize and manufacture gems for both commercial and industrial uses and gains, and (4) a presentation on the positive and negative implications of the social, economic and cultural impacts of gemstone mining and trade in developed and third world countries.

### **GE RATIONALE**

The following section discusses how each individual GE expected learning outcome will be met in most or all of the following: (a) the course objectives, (b) the readings, (c) the topics, (d) the written assignments, and (e) other course components

**GE Physical Sciences ELO1:** Students understand the basic facts, principles, theories and methods of modern science.

- Class lectures focus on the fundamental principles of the chemical and physical properties of gemstones as well as the geological environment of gemstone formation. The technological applications of these basic facts and principles supports students understanding of modern science methods to develop gems for both commercial and industrial uses. Short videos will help visualized basic geologic facts, principles and theories regarding earth processes and gemstone formation. Selected readings from scientific web pages and specialized magazines will be assigned to enhance the understanding of the methods of modern science to manufacture gems. Assignments will include digital poster(s) and short essay(s)

**GE Physical Sciences ELO2:** Students understand key events in the development of science and recognize that science is an evolving body of knowledge.

- Class lectures teach how our understanding of planet Earth processes have changed through time. Students will recognize the ways in which evolving knowledge in science and evolving technologies go hand in hand. Summary readings about historical key geologic discoveries from selected textbooks will be assigned.

**GE Physical Sciences ELO3:** Students describe the inter-dependence of scientific and technological developments.

- Class lectures explain how the key to technology development for the exploration, manufacture and production of gems is human scientific knowledge. Students will answer questions and post opinions (discussion forum) based on a feature-length movie focused on the technological advances in the diamond industry.

**GE Physical Sciences ELO4:** Students recognize social and philosophical implications of scientific discoveries and understand the potential of science and technology to address problems of the contemporary world.

- Class lectures explore the pros and cons of the historical, environmental, socio-economic, ethical and moral impacts of the human relationship with gemstones, particularly diamonds. Short videos, a feature-length movie, and selected readings from newspapers will be assigned to heighten the student’s awareness of the effects of the commercial and mining diamond industry in both developed and third world countries. Assignments will include digital poster(s) and discussion forum(s).

**EXPECTED LEARNING OUTCOMES (ELOS)**

The following table presents the general topics addressed throughout the course and how each topic aligns with the GE Natural Science (Physical Science) category expected learning outcomes in general terms.

| Topic # | Topic list   | Num weeks | PS ELO 1 | PS ELO2 | PS ELO3 | PS ELO4 | Course ELO1 | Course ELO2 | Course ELO3 | Course ELO4 | Course ELO5 | Course ELO6 | Course ELO7 |
|---------|--|-----------|----------|---------|---------|---------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| 1       | Physical properties  | 2         | x        |         | x       |         |             | x           | x           |             |             |             |             |
| 2       | Crystal chemistry and crystal systems                                | 2         | x        |         | x       |         |             | x           |             |             |             |             |             |
| 3       | Interaction of light with gems                                       | 2         | x        |         | x       |         |             | x           | x           |             |             |             |             |
| 4       | Geological (earth) processes that forms gemstones                    | 1         | x        | x       | x       |         | x           |             |             |             |             |             |             |
| 5       | Diamonds: occurrence, production, trade, conflict ("blood") diamonds | 1         | x        | x       | x       | x       | x           |             |             | x           | x           |             | x           |
| 6       | Rock forming minerals as gemstones                                   | 1         | X        | x       | x       |         |             |             |             |             |             |             |             |
| 7       | Gem enhancements & synthesis, imitations and simulants               | 1         | x        | x       | x       | x       |             | x           | x           |             |             |             | x           |
| 8       | Technological gemstone uses  | 1         | x        | x       | x       | x       |             | x           |             |             |             |             | x           |
| 9       | Trade & commerce   | 0.5       |          | x       |         | x       |             |             | x           | x           | x           |             | x           |
| 10      | Historical gems and gemstones in human history                       | 0.5       |          |         |         | x       |             |             |             |             |             | x           | x           |
| 11      | Environmental & societal impacts of the gem mining industry          | 1         |          |         |         | x       |             |             | x           | x           | x           |             | x           |

PS ELO1: Students understand the basic facts, principles, theories and methods of modern science.  
 PS ELO2: Students understand key events in the development of science and recognize that science is an evolving body of knowledge  
 PS ELO3: Students describe the inter-dependence of scientific and technological developments.  
 PS ELO4: Students recognize social and philosophical implications of scientific discoveries and understand the potential of science and technology to address problems of the contemporary world.

Course ELO1: Understand the geological processes and the geological formation environments of gems and precious stones  
 Course ELO2: Learn basic physical properties, identification methods including the theoretical basis for such methods, and uses of gemstones  
 Course ELO3: Develop the skills to evaluate commercially available gems and acquire an understanding of gem attributes to make informed decisions as consumers  
 Course ELO4: Learn how the science of gemology has changed over time and understand the technological developments applied to identifying, enhancing, and synthesizing gemstones  
 Course ELO5: Learn the environmental and human impacts of gemstone exploration, mining, and trade, including illegal trade and conflict gems (e.g. Africa’s “blood” diamonds)  
 Course ELO6: Learn the historical significance of legendary gems, their fate and that of their owners  
 Course ELO7: Understand how gems’ role in society has been impacted by the diamond industry, the entertainment world and, more recently, by social media

## **COURSE ASSESMENT STRATEGY**

Two techniques will be used to assess the extent to which the course satisfies expected learning outcomes (ELOs) associated with the Natural Science (Physical Science) category. These will include:

(1) A direct method to assess student performance with respect to the ELOs. To specifically test if the course is achieving its goals and ELOs this direct measure includes embedded testing into assignments, quizzes, midterms and final exams. Results will be analyzed each semester to evaluate whether this course is meeting its objectives. The goal for the embedded question assessment is that 80% of students give the correct answer for the embedded multiple-choice questions. Questions for which fewer than 80% of students give a correct answer or disagree with meeting the objectives will be pinpointed as areas of weakness.

Embedded questions will be repeated every semester for the first 2 years of the course to test for improvement and adjust the scope, wording or subject if needed. After this period, the procedure will be repeated annually to ensure the course continues to meet GE goals and ELOs.

(2) An indirect method to track student knowledge, learning experience and perceptions in the form of a student survey (pre and post-tests) given at the beginning of course and at the end of course. Survey questions would be the same both times. Changes in the answers from beginning to end of semester would characterize the impact of the course on its students and serve as a guide for adjustments to the course contents, organization, etc. The survey questions will be repeated each semester

| <b>GE Expected Learning Outcomes</b>   | <b>Methods of Assessment</b><br><i>*Direct methods are required. Additional indirect methods are encouraged.</i>  | <b>Level of student achievement expected for the GE ELO.</b><br><i>(for example, define percentage of students achieving a specified level on a scoring rubric)</i>   | <b>What is the process that will be used to review the data and potentially change the course to improve student learning of GE ELOs?</b>   |
|--|---|---|---|
| <p><b>ELO 1</b><br/>Students understand the basic facts, principles, theories and methods of modern science.</p> | <p>1. Embedded questions into quizzes, midterm and final exam</p> <p>2. Digital Poster/Short Essay<br/>Students create a digital poster (short essay) using PowerPoint or word. Posters and essays summarize information learned in class. Posters and essays are a mixture of brief text tables, graphs, pictures, and other presentation formats. Students are provided information on copyright, referencing and grading criteria of the digital poster<br/>Grading Criteria:<br/> <b>Excellent</b> <i>(demonstrates superior creativity, originality, or understanding in approach, content, or presentation)</i><br/> <b>Above average</b> <i>(demonstrates creativity, originality, or understanding beyond basic expectations)</i><br/> <b>Acceptable</b> <i>(meets basic expectations for presentation, approach and content)</i></p> | <p>1. The expectation is that 80% of students give the correct answer for the embedded multiple-choice test questions, averaged across all sections</p> <p>2. The expectation is that 90% of students achieve the level of “acceptable” or better</p> | <p>Standardized questions for which fewer than 80% of students give a correct answer will be pinpointed as areas of weakness. To address weaknesses instructor will analyze the instructional materials and craft changes.</p> <p>Embedded questions will be collected by the instructor and incorporated into the end of semester assessment report</p> <p>The student surveys (pre and post- tests) are distributed by the instructor. Students are encouraged to take survey by way of small extra credit earning. The results are shared with evaluation team throughout the end of semester assessment report</p> <p>Review SEIs with special emphasis on any negative comments on activities.</p> |

|  |   |   |   |
|--|---|---|---|
|  | <p><b>Marginal</b> (below average in presentation, approach, understanding or content)</p> <p><b>3.</b> Student Survey (pre and post-tests)<br/>Pre and Post tests are identical to check gains in understanding of material. The test consists of 15-20 questions relevant to the course ELOs. Pre-tests are administered in the first week of classes. Post-tests are administered during the last week of classes or incorporated into the final exam.</p> <p><b>4.</b> End of Semester Self-Assessment Questionnaire (10 questions) were students indicate which of the following responses they feel better represents their knowledge on end of course goals (see syllabus): <i>Extremely well/very well/adequately well/not very well/not at all</i></p> | <p><b>3.</b> The expectations is that students would increase their knowledge per goal by at least 25%.</p> <p><b>4.</b> The expectation is that 100% of students will feel they have achieved the goal at the level of “adequately well” or better</p>   | <p>In-class discussion and real time feedback from students</p> |
| <p><b><u>ELO 2</u></b><br/>Students learn key events in the development of science and recognizes that science is an evolving body of knowledge.</p> | <p><b>1.</b> Embedded questions into quizzes, midterm and final exam</p> <p><b>2.</b> Student Survey (pre and post- tests): see above</p> <p><b>3.</b> End of Semester Self-Assessment: see above</p>   | <p><b>1.</b> The expectation is that 80% of students give the correct answer for the embedded multiple-choice test questions, averaged across all sections</p> <p><b>2.</b> The expectations is that students would increase their knowledge per goal by at least 25%.</p> <p><b>3.</b> The expectation is that 100% of students will feel they have achieved the</p> |   |



|  |  |  |  |
|--|--|--|--|
|  |  | goal at the level of “adequately well” or better   |  |
| <p><b>ELO 3</b><br/>Students describe the inter-dependence of scientific and technological developments.</p> | <p><b>1.</b> Embedded questions into quizzes, midterm and final exam</p> <p><b>2.</b> Questionnaire/ Discussion Forum<br/>Approximately 15-20 questions relevant to an assigned topic followed by online forum where students discuss and summarize questionnaire.<br/>Grading criteria for forum based on: Contribution frequency, depth of presentation (critical thinking), relevant content and supporting evidence, netiquette</p> <p><b>3.</b> Student Survey (pre and post- tests): see above</p> <p><b>4.</b> End of Semester Self-Assessment: see above</p> | <p><b>1.</b> The expectation is that 80% of students give the correct answer for the embedded multiple-choice test questions, averaged across all sections</p> <p><b>2.</b> The expectation is that 85% of students achieve 80% or higher based on grading rubric.</p> <p><b>3.</b> The expectations is that students would increase their knowledge per goal by at least 25%.</p> <p><b>4.</b> The expectation is that 100% of students will feel they have achieved the goal at the level of “adequately well” or better</p> |  |

|  |   |  |  |
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| <p><b>ELO 4</b><br/>Students recognize social and philosophical implications of scientific discoveries and understand the potential of science and technology to address problems of the contemporary world.</p> | <p><b>1.</b> Embedded questions into quizzes, midterm and final exam</p> <p><b>2.</b> Digital Poster/Discussion Forum: see above</p> <p><b>3.</b> Student Survey (pre and post- tests): see above</p> <p><b>4.</b> End of Semester Self-Assessment: see above</p> | <p><b>1.</b> The expectation is that 80% of students give the correct answer for the embedded multiple-choice test questions, averaged across all sections</p> <p><b>2.</b> The expectation is that 85% of students achieve the level of “acceptable” or better</p> <p><b>3.</b> The expectations is that students would increase their knowledge per goal by at least 25%.</p> <p><b>4.</b> The expectation is that 100% of students will feel they have achieved the goal at the level of “adequately well” or better.</p> |  |
|--|---|--|--|

## Arts and Sciences Distance Learning Course Component Technical Review Checklist

**Course:** EARTHSC 1108

**Instructor:** Dr. Cristina Millan

**Summary:** Gemstones

| <b>Standard - Course Technology</b>   | <b>Yes</b> | <b>Yes with Revisions</b> | <b>No</b> | <b>Feedback/<br/>Recomm.</b>  |
|---|------------|---------------------------|-----------|---|
| 6.1 The tools used in the course support the learning objectives and competencies.  | X          |                           |           | <ul style="list-style-type: none"> <li>• Carmen</li> <li>• Secure Media Library</li> <li>• YouTube (through Carmen)</li> </ul>  |
| 6.2 Course tools promote learner engagement and active learning.  | X          |                           |           | <ul style="list-style-type: none"> <li>• Digital Posters</li> <li>• Discussion Board Assignments</li> <li>• Carmen Quizzes</li> </ul>   |
| 6.3 Technologies required in the course are readily obtainable.   | X          |                           |           | All materials are available free of charge.   |
| 6.4 The course technologies are current.  | X          |                           |           | All are web based and updated regularly   |
| 6.5 Links are provided to privacy policies for all external tools required in the course.   | X          |                           |           | No external tools are used that require an account or agreement to terms and conditions.  |
| <b>Standard - Learner Support</b>   |            |                           |           |   |
| 7.1 The course instructions articulate or link to a clear description of the technical support offered and how to access it.  | X          |                           |           | Links to 8HELP are provided   |
| 7.2 Course instructions articulate or link to the institution's accessibility policies and services.  | X          |                           |           | a   |
| 7.3 Course instructions articulate or link to an explanation of how the institution's academic support services and resources can help learners succeed in the course and how learners can obtain them. | X          |                           |           | b   |
| 7.4 Course instructions articulate or link to an explanation of how the institution's student services and resources can help learners succeed and how learners can obtain them.                        | X          |                           |           | c   |
| <b>Standard – Accessibility and Usability</b>   |            |                           |           |   |
| 8.1 Course navigation facilitates ease of use.  | X          |                           |           | Recommend using the Carmen Distance Learning "Master Course" template developed by ODEE and available in the Canvas Commons to provide student-users with a consistent user experience in terms of navigation and access to course content. |
| 8.2 Information is provided about the accessibility of all technologies required in the course.   | X          |                           |           | No 3 <sup>rd</sup> party tools are used outside of 1 <sup>st</sup> party resources.   |
| 8.3 The course provides alternative means of access to course materials in formats that meet the needs of diverse learners.   | X          |                           |           |   |
| 8.4 The course design facilitates readability   | X          |                           |           |   |
| 8.5 Course multimedia facilitate ease of use.   | X          |                           |           | All assignments and activities that use the Carmen LMS with embedded multimedia facilitates ease of use. All other multimedia resources facilitate ease of use by being available through a standard web browser                            |

## Reviewer Information

- Date reviewed: 1/15/20
- Reviewed by: Ian Anderson

**Notes:** Carmen Connect is now Carmen Zoom. Please replace all references to Carmen Connect with Carmen Zoom.

<sup>a</sup>The following statement about disability services (recommended 16 point font):  
Students with disabilities (including mental health, chronic or temporary medical conditions) that have been certified by the Office of Student Life Disability Services will be appropriately accommodated and should inform the instructor as soon as possible of their needs. The Office of Student Life Disability Services is located in 098 Baker Hall, 113 W. 12th Avenue; telephone 614- 292-3307, [slds@osu.edu](mailto:slds@osu.edu); [slds.osu.edu](http://slds.osu.edu).

<sup>b</sup>Add to the syllabus this link with an overview and contact information for the student academic services offered on the OSU main campus.

<http://advising.osu.edu/welcome.shtml>

<sup>c</sup>Add to the syllabus this link with an overview and contact information for student services offered on the OSU main campus. <http://ssc.osu.edu>. Also, consider including this link in the “Other Course Policies” section of the syllabus.