COURSE OUTLINE
ISCI 3A12
2019-2020

INSTRUCTORS:

<table>
<thead>
<tr>
<th>Name</th>
<th>Component &amp; Projects</th>
<th>Email</th>
<th>Room</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brodeur, Jason</td>
<td>Climate Change</td>
<td><a href="mailto:brodeuji@mcmaster.ca">brodeuji@mcmaster.ca</a></td>
<td>Mills L110</td>
</tr>
<tr>
<td>Ellis, Russ</td>
<td>Forensics, Wine Science</td>
<td><a href="mailto:ellisr@mcmaster.ca">ellisr@mcmaster.ca</a></td>
<td>GSB 114</td>
</tr>
<tr>
<td>Eyles, Carolyn</td>
<td>Wine Science</td>
<td><a href="mailto:eylesc@mcmaster.ca">eylesc@mcmaster.ca</a></td>
<td>Thode308a</td>
</tr>
<tr>
<td>Harvey, Chad</td>
<td>Forensics, IP</td>
<td><a href="mailto:harvech@mcmaster.ca">harvech@mcmaster.ca</a></td>
<td>Thode 306B</td>
</tr>
<tr>
<td>Jones, Devon</td>
<td>Instructional Assistant, IP</td>
<td><a href="mailto:jonesde2@mcmaster.ca">jonesde2@mcmaster.ca</a></td>
<td>GSB 114</td>
</tr>
<tr>
<td>O’Dell, Duncan</td>
<td>Light, the Universe, and Everything (LUE)</td>
<td><a href="mailto:dodell@mcmaster.ca">dodell@mcmaster.ca</a></td>
<td>ABB 320</td>
</tr>
<tr>
<td>Symons, Sarah</td>
<td>LUE, Science Literacy</td>
<td><a href="mailto:symonss@mcmaster.ca">symonss@mcmaster.ca</a></td>
<td>Thode 306A</td>
</tr>
</tbody>
</table>

ADMINISTRATIVE SUPPORT:

<table>
<thead>
<tr>
<th>Name</th>
<th>Component</th>
<th>Email</th>
<th>Room</th>
</tr>
</thead>
<tbody>
<tr>
<td>Misiak, Rebecca</td>
<td>Academic Advisor</td>
<td><a href="mailto:misiakr@mcmaster.ca">misiakr@mcmaster.ca</a></td>
<td>GSB 105D</td>
</tr>
<tr>
<td>Robinson, Sarah</td>
<td>Administrator</td>
<td><a href="mailto:sjrobin@mcmaster.ca">sjrobin@mcmaster.ca</a></td>
<td>GSB 105F</td>
</tr>
<tr>
<td>MSAF Submissions</td>
<td>(only for use on MSAF form)</td>
<td><a href="mailto:3a12msaf@mcmaster.ca">3a12msaf@mcmaster.ca</a></td>
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</table>

COURSE DESCRIPTION:

ISCI 3A12 is a 12 credit course open only to students registered in the Honours Integrated Science program. The course aims to

- provide you with a wide-ranging background of core concepts in the areas;
- illustrate the interconnectedness of the scientific disciplines, drawing on the research projects;
- equip you with a wide range of scientific, problem-solving, critical thinking, and collaborative skills;
- nurture a creative, student-oriented, distinctive learning environment in which you can further develop your academic identities, scientific interests, research, and professional development skills within our community of students, staff, and faculty.

Program Website: [http://www.science.mcmaster.ca/isci/](http://www.science.mcmaster.ca/isci/)

Avenue to Learn site: [http://avenue.mcmaster.ca/](http://avenue.mcmaster.ca/)

LEARNING OBJECTIVES:

Throughout the course, you will be developing a range of skills including: research skills, team work, leadership, communication skills, information literacy, experimental design, critical thinking, data analysis, numeracy, making an argument, and math literacy. ISCI 3A12 consists of six components. The learning objectives for each component are:

Wine Science (10 weeks, Term 1)

This project will introduce students to the winemaking process and give students a taste of a Canadian industry that is dependent on the integration of many areas of science. Project teams can pursue topics ranging from viticulture, to the processes involved in making wine, oenology, and the health or financial impacts of wine and the industry.
The project will include a mandatory fieldtrip, workshops, invited speaker seminars and creation of a print scientific review magazine.

**Forensic Investigation (10 weeks, Term 1)**

This project will introduce students to the basic processes of forensic investigation. Topics will include crime scene investigation, evidence analysis, forensic anthropology, and the legal system. Students will learn to appreciate the diverse skills required by forensic scientists, who are capable of integrating knowledge and skills in the examination, analysis, interpretation, reporting, and testimonial support of physical evidence. The broader application of this module will focus on compiling evidence, scientific or otherwise, and developing a defensible argument. The project will include invited speaker seminars and workshops.

**Climate Change (10 weeks, Term 1)**

This project provides students with an opportunity to advance their understanding of climate change science, while exploring many of the issues that currently exist at the intersection of science and society. Through a combination of lectures, seminar presentations, discussions, and assignments, students will learn about the past, present, and future of Earth’s climate, and will gain appreciation of the multi- and inter-disciplinarity of its study. Through individual and project work, students will also investigate how scientific knowledge is communicated, understood, and used in societal discourse and decision-making. Among the tangible products of this project, students will work in groups to create podcasts that inform non-specialist audiences about scientific issues related to climate change. Also included in this project is a mandatory fieldtrip to the Turkey Point Climate Research Station, to experience climate change-related research.

**Light, the Universe, and Everything (10 weeks, Term 2)**

This project will give students the opportunity to investigate topics from astronomy, astrophysics, cosmology, and astrobiology. The project will also include creation of seminars, giving students the opportunity to develop some teaching skills.

**Science Literacy (all year)**

Students will choose a variety of SciLit activities to count towards their SciLit component, including drafting project work, participating in the Synthesis Symposium, and science blogging.

**Independent Project (10 weeks, Term 2)**

The purpose of the 3A12 Independent Project (IP) is to allow students to experience a more concerted, independent research opportunity. This project will occur over the first ten weeks of Term 2, leading to the iSci Symposium. This project will expose students to the challenges and rewards of independent research associated with idea development and literature review, as well as the communication of research significance and societal relevance.

Students will be expected to submit a research proposal in late November identifying the topic and scope of the proposed research, support/facilities required to conduct the research and the name and agreement of their IP Consultant.

**CLASS ACTIVITIES:**

The weekly course timetable will be posted on Avenue. The course calendar (a Google Calendar) on Avenue will supersede all other calendars including MOSAIC. Any schedule changes will be announced on Avenue.

**Check the Avenue course site daily.**

You must be prepared to be present at all of the times indicated for iSci classes, including iConS, workshops, invited speaker seminars, & tutorials.

**Format**

There will be up to 12 hours of supervised time per week (not including some field trips and exams). Attendance is mandatory for all supervised time. The course contains four group research projects, and an independent research project. The types of activities are:
**iConS**: (Integrated Concept Seminars): Class activities led by an instructional team member. These will focus on core disciplinary knowledge, scientific techniques and interdisciplinary topics. They will usually contain activities and discussion. Your understanding of content presented in iConS will be assessed via exams, continuous assessment, and/or project work.

**SciLit** (Science Literacy): Students will choose a variety of SciLit activities to count towards their SciLit component, including drafting project work, participating in the Synthesis Symposium, and blogging.

**Workshops**: An activity or exercise that you do in any discipline area that does not appear in the lab manual and does not involve lab notes. Workshops may include in class work on computers or problem sets. Workshops do NOT include any work done on computers that would be considered experimental (e.g. simulations). There may be assignments associated with workshops.

**COURSE SCHEDULE:**

<table>
<thead>
<tr>
<th>Dates</th>
<th>Activities</th>
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<tbody>
<tr>
<td>September 3 – November 22</td>
<td>RP: Wine Science</td>
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<tr>
<td>September 9 – November 29</td>
<td>RP: Forensic Science</td>
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<tr>
<td>September 16 – December 4</td>
<td>RP: Climate Change</td>
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<td>October 14 – 20</td>
<td>Mid-term Recess</td>
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<tr>
<td>January 6 – March 27</td>
<td>RP: LUE</td>
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<tr>
<td>January 6 – March 27</td>
<td>RP: Independent Project</td>
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<tr>
<td>February 17 – 23</td>
<td>Mid-term Recess</td>
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<tr>
<td>Mar 30 – April 7</td>
<td>iSci Symposium</td>
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**OFFICE HOURS**

Instructors and Teaching Assistants will hold office hours and communicate via Avenue when and where these take place.

**REQUIRED TEXTS & MATERIALS**

The following items can all be purchased at the Campus Store.

**Wine Science (recommended)**  

**Wine Science (optional)**  
Jackson, R.S. *Wine Science: Principles and Applications*. Elsevier Inc. ISBN: 987-0123814685

**Forensic Investigation** – No text required

**Climate Change** – No text required

**Light, the Universe, and Everything (optional)**  

**Independent Project**  
No text required

**Lab coat and safety goggles** (required)
**Calculator** (required) Casio fx-991 MS Plus ONLY.
ASSESSMENT

ISCI 3A12 will be assessed across four group research projects as well as an independent research project. You will also be assessed in science literacy throughout the year.

*Research Project assessments* may include workshops, preparatory tasks, and general “homework” and quizzes. It may also include individual and group reports, posters or presentations. Deliverables specific to each project will be clearly outlined in the Research Project Pack that will be made available to you before the beginning of the project.

Research Projects will contain varied assessed deliverables that demonstrate not only scientific skills, but also additional research, collaborative authorship, project management, peer review, and communication skills. There will be a mixture of group and individual assignments.

This course is worth 12 credits. The table below shows how the ISCI 3A12 course mark will be assembled.

<table>
<thead>
<tr>
<th>COMPONENT</th>
<th>ACTIVITY</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Continuous</td>
<td>Projects</td>
</tr>
<tr>
<td>Wine Science</td>
<td>30</td>
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<tr>
<td>Climate Change</td>
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</tr>
<tr>
<td>Forensic Investigation</td>
<td>30</td>
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</tr>
<tr>
<td>Light, the Universe, and Everything</td>
<td>45</td>
<td>45</td>
</tr>
<tr>
<td>Independent Project</td>
<td>45</td>
<td>45</td>
</tr>
<tr>
<td>Science Literacy</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>200</strong></td>
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</table>

**PASS-FAIL CRITERIA BY COMPONENT**

Passing ISCI 3A12 requires passing (i.e. grade of 50% or higher) *ALL of the six* component parts. Pass criteria for each component can be found in the component outline or project pack. You must pass ISCI 3A12 to register in ISCI 4A12. If you fail a component, there are no opportunities to make up any part of ISCI 3A12. There will also be no portioning of passed credit/failed credit, so in order to stay in iSci you would have to retake and pass ISCI 3A12.

**FIELD TRIPS**

There are two mandatory field trips in ISCI 3A12. Each is booked on a Saturday. You are expected to participate in each, so please plan ahead to be available on these days. The first trip will be for the Wine Science Project and will include tours of two wineries in the Niagara region. The second field trip will be for the Climate Change Project, where you will have an opportunity to observe and experience climate change-related research in action.
ABSENCES & MISSED WORK

If you are absent from the university for a minor medical or personal reason, lasting up to 3 calendar days, you may report your absence, **once per term**, without documentation, using the McMaster Student Absence Form (MSAF). MSAF is available in MOSAIC Student Center (in the drop-down menu under Academics). Absences of a longer duration (>3 days), and/or for work worth more than 25% of the final grade, and/or if you have already submitted an MSAF request for the term, must be reported to the Office of the Associate Dean of Science (BSB 129), with documentation, and relief from term work may not necessarily be granted. **When using the MSAF, you MUST use 3a12msaf@mcmaster.ca as the contact e-mail for your ISCI 3A12 work.** You MUST ALSO contact the relevant component lead or laboratory coordinator (depending on what you missed) within 48 hours by email. If you do not, your MSAF may not be granted. Please refer to the contact list on the first page of this outline for appropriate email addresses. Your component lead or laboratory coordinator will indicate what relief may be granted for the work you have missed, and relevant details such as revised deadlines, or time and location of a make-up exam/quiz/test. An MSAF is a request for **individual** consideration: understand that an instructor may respond with an **individual** solution. **Please note that the MSAF may not be used for final project deliverables, deliverables worth more than 25% of the final grade, nor can it be used for a final examination or its equivalent.**

**Absence from iCons, Tutorials or Workshops:** If you are absent from any scheduled ISCI 3A12 session, it is your responsibility to make up missed work. If you are absent from a scheduled ISCI 3A12 session that has an associated piece of assessment (e.g. test, quiz, presentation, etc.) without authorization your mark will be recorded as 0 (see procedure for authorized absence above). Students are expected to arrive to their scheduled workshop time slot at least 5 minutes before the workshop begins. **The lab door will be locked once the workshop starts.** Students who arrive late to the lab will be turned away and the workshop will be subject to a mark of 0 and count as a missed workshop.

**Absence from Invited Speaker Seminars:** Unless approval for missing an Invited Speaker Seminar is obtained (see procedure for authorized absence above) your project mark associated with the Invited Speaker Seminar could be reduced by 20%. Attendance will be taken at all Invited Speaker Seminars.

**Missed deadlines**

Any late submissions will result in a penalty of **20% per day unless** faculty members are notified of any problems in advance and approve of a late submission. It is left to the discretion of the instructor to determine if accommodations will be made. This holds for both group and individual assignments.

**Missed exams and other assessment activities**

Exams or other assessment activities missed for reasons of unauthorized absence will be graded as zero. Authorized absence will result in rescheduled exams or compensation from other assessment activities.

**CHECKING YOUR GRADES and RE-MARK POLICY**

You will have **one week** from the date that an assignment (or test or mid-term exam) is returned to you to **appeal your mark**. If you wish to appeal a grade, you must submit to the component lead (or laboratory coordinator for labs) a written note justifying why you wish to have the assignment remarked, with the assignment attached. If your component lead or laboratory coordinator considers the written justification to be insufficient (e.g. simply wanting a higher grade is insufficient), the assignment will not be re-graded. If the justification is considered sufficient, the entire assignment will be re-graded. You must therefore understand that your mark can increase or decrease.

Your marks will be recorded on Avenue. It is your responsibility to check that all grades entered into Avenue are recorded properly. You must notify your component leaders and laboratory coordinator about any errors with regards to how your mark was entered. You have until 48 hours prior to the final exam to discuss any Avenue mark issues.

The policy for viewing and requesting a formal review of final exams will be available on Avenue.
COMMUNICATION BETWEEN STUDENTS AND THE INSTRUCTIONAL TEAM

Any e-mails addressed to faculty must have a brief, relevant subject line, must come from a mcmaster.ca e-mail account and must copy in all relevant parties (e.g. other markers, other group members). All e-mail communication addressed to students will be sent to their mcmaster.ca e-mail account.

All assignments must be handed in via Avenue, in the specified file format (usually pdf). Author(s) name(s) and group designations, if applicable, must be clearly marked on the first page of the work handed in. Submitted files must be named in a way to easily identify the assignment and the author and/or group designation.

Work that is late, handed in to the wrong person, inadequately identified, or in the wrong format, risks losing marks. Instructors will endeavour to return marked materials within two weeks of hand-in.

PLAGIARISM DETECTION

In this course, we will be using a web-based service (Turnitin.com) to reveal plagiarism. Students will be expected to submit their work electronically to Turnitin.com and in hard copy so that it can be checked for academic dishonesty. Students who do not wish to submit their work to Turnitin.com must still submit a copy to the instructor. No penalty will be assigned to a student who does not submit work to Turnitin.com. All submitted work is subject to normal verification that standards of academic integrity have been upheld (e.g., on-line search, etc.). To see the Turnitin.com Policy, please go to https://www.mcmaster.ca/academicintegrity/turnitin/students/index.html

POLICY ABOUT ONLINE ACCESS OR ONLINE COURSE WORK REQUIREMENTS

In this course we will be using e-mail, Avenue, and PebblePad. Students should be aware that, when they access the electronic components of this course, private information such as first and last names, user names for the McMaster e-mail accounts, and program affiliation may become apparent to all other students in the same course. The available information is dependent on the technology used. Continuation in this course will be deemed consent to this disclosure. If you have any questions or concerns about such disclosure please discuss this with the course instructor.

STUDENT RESPONSIBILITIES

To get the most out of the course, you must be prepared to:

- attend all sessions, make up all missed work, and provide documentation for authorized absences;
- interact frequently with faculty, students, TAs, and other support staff;
- plan and manage your own time;
- complete preparatory tasks (such as reading, writing assignments, and initial research) in advance of sessions;
- develop and use reflective learning skills (for example identifying learning objectives, planning and carrying out research tasks, acting on academic feedback);
- work as an effective, efficient, and responsive team member on group assignments;
- follow all the guidelines as outlined in the Introduction section of the Laboratory Manual;
- check the course Avenue site, and your McMaster e-mail daily for updates; and,
- follow all university policies and guidelines, and in all ways be a responsible university member.

SENATE STUDENT POLICIES

Students can view full policies here (http://www.mcmaster.ca/policy/Students-AcademicStudies/).

Senate Policy Statements are also available from the Senate Secretariat Office, Room 104, and Gilmour Hall.

Academic Integrity

http://www.mcmaster.ca/policy/Students-AcademicStudies/AcademicIntegrity.pdf

Academic dishonesty consists of misrepresentation by deception or by other fraudulent means and can result in serious consequences, e.g. the grade of zero on an assignment, loss of credit with a notation on the transcript
(notation reads: "Grade of F assigned for academic dishonesty"), and/or suspension or expulsion from the university. It is your responsibility to understand what constitutes academic dishonesty.

The following illustrate only four of many forms of academic dishonesty:

- plagiarism, e.g. the submission of work that is not one's own or for which other credit has been obtained;
- copying or using unauthorized aids in laboratory exercises
- improper collaboration in group work; and,
- copying or using unauthorized aids in quizzes, tests and examinations

All students are reminded of the importance of academic integrity, and the serious consequences of academic dishonesty.

**Student Code of Conduct**


You acknowledge that your behavior in all aspects of this course should meet the standards of the McMaster University Student Code of Conduct. You understand that any inappropriate behavior directed against any of your colleagues, teaching assistants, or the instructional team will not be tolerated. Disruptive behavior during any session (e.g. lecture, seminar, lab, tutorial) such as talking, sleeping or non-class computing while an individual presents information, or constantly being late, will also not be tolerated. Abuse, ridicule, slander, inappropriate language, and discrimination towards instructors, teaching staff, teaching assistants and other students will not be tolerated in any capacity. Shared spaces including e-spaces such as the Avenue to Learn course discussion board are to be considered inclusive and safe.

**Copyright Policy**

In this course you will have access to material that is subject to copyright laws. This includes (but is not limited to) textbooks and all resources developed by the instructors such as lab manuals, demonstration videos, quizzes, assignments, tests, class notes and class slides. Under no circumstance are you allowed to share or redistribute this material in any printed or electronic form without the explicit written consent of the copyright holder. This includes posting any course material on Internet bulletin boards, course repositories, social networks, etc.

**McMaster Accommodation for Religious, Indigenous and Spiritual Observances Form (RISO):**

At the beginning of EACH term, visit the website of the Office of the Associate Dean (Academic) https://www.science.mcmaster.ca/associatedean/current-students/procedures-forms.html if you need accommodations for religious, Indigenous and/or spiritual observances. Follow the procedure explained there under “Accommodation for Religious, Indigenous and Spiritual Observances Form (RISO)”.

**Inclusivity and Accommodations:**

McMaster University aims to foster a supportive, inclusive learning environment that will encourage both individual and collective growth. Students are required to register with Student Accessibility Services (SAS) first (https://sas.mcmaster.ca/). Any student who then wishes to invoke an accommodation for any aspect(s) of this course must contact the instructor at the beginning of the semester to discuss how the accommodations detailed in their SAS letter will be fulfilled in this course.

**The instructors and the university reserve the right to alter this outline if necessary.**

**Extreme circumstance**

The University reserves the right to change the dates and deadlines for any or all courses in extreme circumstances (e.g., severe weather, labour disruptions, etc.). If either type of modification becomes necessary, reasonable notice and communication with the students will be given with explanation and the opportunity to comment on changes. Changes will be communicated through regular McMaster communication channels, such as McMaster Daily News, A2L and/or McMaster email. It is the responsibility of the student to check their McMaster email and course websites weekly during the term and to note any changes.