



**UNIVERSITY OF CALGARY**  
**FACULTY OF ARTS**  
**DEPARTMENT OF ART AND ART HISTORY**  
**Art 317 – Electronics for Artists**  
**Winter 2023**

Course Delivery Format:	<i>In person</i> <b>**PLEASE NOTE: While masks are currently not required at UCalgary, they are <u>strongly encouraged</u> for all on-campus spaces</b>
Instructor: Office: Email: Office Hours: TA Name and Email:	<i>J R Parker</i> <i>AB 606</i> <a href="mailto:jparker@ucalgary.ca">jparker@ucalgary.ca</a> <i>M 1:001-12:00 T :001-2:00</i>
Day(s), time(s) and location of class:	<i>MW 08:30 – 11:00</i> <i>AB 628</i>
Course description:	Theoretical and practical applications of basic electronic principles and techniques involving the use of electronics in contemporary art practices. Will include applied experiences with hardware and visual programming environments.
Prerequisites and/or co-requisites:	3 units of courses labelled Art.
Course Objectives:	Some modern artworks (installations, some performance art) use electricity or electronics as an enabling technology. Knowledge of electronics will help an artist imagine and design such works, and practical knowledge of parts and construction methods will allow an artist to undertake these projects without technical assistance. The material presented in this course will allow an artist to design and build artworks that feature electronics. In particular, upon successful completion of this course students will: <ol style="list-style-type: none"> <li>1. Understand the basic properties of electricity and the properties of electronic components.</li> <li>2. Be able to design electronic circuits that control lights and sounds.</li> <li>3. Understand how to use resistors, capacitors, diodes and transistors.</li> <li>4. Have a basic knowledge of digital circuit components and design.</li> <li>5. Be able to use transducers like LEDs, microphones, photodiodes/phototransistors, and others.</li> </ol>
Required Textbooks of Readings:	Web site and online notes. <a href="http://www.minkhollow.ca/Art317">http://www.minkhollow.ca/Art317</a>
Course Schedule:	This course is taught as <b>inquiry based</b> and <b>just-in-time</b> , so a schedule is not available.

**Assignments & Evaluation**

Assignment	Description	Due Date	Worth
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Assignment 1	Use of illumination in a simple art work	January 30	10
Assignment 2	Use of animation or change in an art work.	February 17	15
Assignment 3	Including sound in an art work.	March 6	15
Assignment 4	Use of motion, projection, or complex existing circuits.	March 20	15
Assignment 5	Using sensors in an artwork to allow viewer interaction	April 12	20
In-Studio assignments	Specific to the topics for that week.	Each week	25%
Models:	<i>No</i>		
Assessment expectations:	<p><u>Guidelines for Submitting Assignments:</u> <i>in-person or Email</i></p> <p><u>Missed or Late Assignments:</u> <i>Can hand in assignments late if it is requested in advance.</i></p> <p><u>Expectations for Writing:</u> Writing skills are important to academic study across all disciplines. Consequently, instructors may use their assessment of writing quality as a factor in the evaluation of student work. Please refer to the Undergraduate Calendar E.2 Writing Across the Curriculum policy for details.</p>		
Additional Costs and Information:	<p><i>Students will provide a kit of their own electronic parts. Sources include:</i></p> <p>In Calgary there is: Solarbotics <a href="https://www.solarbotics.com/page/3/?s=arduino&amp;post_type=product&amp;dgwt_wcas=1">https://www.solarbotics.com/page/3/?s=arduino&amp;post_type=product&amp;dgwt_wcas=1</a> #101 3740D-11A Street NE 1-403-232-6268</p> <p>ELEGOO UNO Project Super Starter Kit with Tutorial \$57.99 <a href="https://www.amazon.ca/s?k=ardiono+kit&amp;i=industrial&amp;crd=F6NCHKOF7VC&amp;sprefix=ardiono+kit%2Cindustrial%2C148&amp;ref=nb_sb_noss">https://www.amazon.ca/s?k=ardiono+kit&amp;i=industrial&amp;crd=F6NCHKOF7VC&amp;sprefix=ardiono+kit%2Cindustrial%2C148&amp;ref=nb_sb_noss</a></p> <p>ELEGOO UNO R3 Project Complete Starter Kit with Tutorial for Arduino UNO (63 Items) 79.99 <a href="https://www.amazon.ca/ELEGOO-Project-Complete-Starter-Tutorial/dp/B01M9CHF1J/ref=sr_1_2_sspa?crd=F6NCHKOF7VC&amp;keywords=ardiono+kit&amp;qid=1671209476&amp;s=industrial&amp;sprefix=ardiono+kit%2Cindustrial%2C148&amp;sr=1-2-spons&amp;psc=1&amp;spLa=ZW5jcnlwdGVkUXVhbGlmaWVyPUFDTUZINTNHNDfIVVgmZW5jcnlwdGVkSWQ9QTA4NDc2OTMyTz11QkoxMVo4RzU2JmVuY3J5cHRIZEFkS WQ9QTA4NDY1OTUySEoxUjNNskY1NExHJndpZGldE5hbWU9c3BFYXRmJmFjdGlvbj1jbGlja1JlZGlyZWN0JmRvTm90TG9nQ2xpY2s9dHJ1ZQ==">https://www.amazon.ca/ELEGOO-Project-Complete-Starter-Tutorial/dp/B01M9CHF1J/ref=sr_1_2_sspa?crd=F6NCHKOF7VC&amp;keywords=ardiono+kit&amp;qid=1671209476&amp;s=industrial&amp;sprefix=ardiono+kit%2Cindustrial%2C148&amp;sr=1-2-spons&amp;psc=1&amp;spLa=ZW5jcnlwdGVkUXVhbGlmaWVyPUFDTUZINTNHNDfIVVgmZW5jcnlwdGVkSWQ9QTA4NDc2OTMyTz11QkoxMVo4RzU2JmVuY3J5cHRIZEFkS WQ9QTA4NDY1OTUySEoxUjNNskY1NExHJndpZGldE5hbWU9c3BFYXRmJmFjdGlvbj1jbGlja1JlZGlyZWN0JmRvTm90TG9nQ2xpY2s9dHJ1ZQ==</a></p> <p>Other online sources:</p> <p>Newark: <a href="https://www.newark.com/">https://www.newark.com/</a></p> <p>Electronic Goldmine: <a href="https://theelectronicgoldmine.com/en-ca">https://theelectronicgoldmine.com/en-ca</a></p>		

	<p>Digi-Key:  <a href="https://www.digikey.ca/?utm_adgroup=General&amp;utm_source=bing&amp;utm_medium=pc&amp;utm_campaign=EN_Brand_Digi-Key&amp;utm_term=digkey&amp;utm_content=General&amp;utm_id=bi_cmp-25469353_adg-1296324536030785_ad-81020352327824_kwd-81020514251825:loc-32_dev-c_ext-prd-&amp;productid=&amp;msclkid=079b94cbdc9919748ff4f7577887349c">https://www.digikey.ca/?utm_adgroup=General&amp;utm_source=bing&amp;utm_medium=pc&amp;utm_campaign=EN_Brand_Digi-Key&amp;utm_term=digkey&amp;utm_content=General&amp;utm_id=bi_cmp-25469353_adg-1296324536030785_ad-81020352327824_kwd-81020514251825:loc-32_dev-c_ext-prd-&amp;productid=&amp;msclkid=079b94cbdc9919748ff4f7577887349c</a></p> <p>SparkFun  <a href="https://www.sparkfun.com/">https://www.sparkfun.com/</a></p> <p>Jameco  <a href="https://www.jameco.com/">https://www.jameco.com/</a></p>
Portfolios and Assignments:	The Dept of Art and Art History will not assume responsibility for lost or stolen portfolios or course work given to instructors for grading.

**Other Important Dates**

For more information on term dates, add/drop/swap/withdraw dates from course deadlines and refund/payment deadlines, please see: <https://www.ucalgary.ca/pubs/calendar/current/academic-schedule.html>

## Grading Method and Grading Scale

**Undergraduate:** <https://www.ucalgary.ca/pubs/calendar/current/f-1-1.html>

- A grade of "C-" or below may not be sufficient for promotion or graduation, see specific faculty regulations.
- The number of "D" and "D+" grades acceptable for credit is subject to specific undergraduate faculty promotional policy.

Percentage	Grade	G.P.V.	Grade Definition
96-100	A+	4.0	Outstanding performance
90-95	A	4.0	Excellent-superior performance, showing comprehensive understanding of subject matter.
85-89	A-	3.7	Approaching excellent performance
80-84	B+	3.3	Exceeding good performance
75-79	B	3.0	Good – clearly above average performance with knowledge of subject matter generally complete.
70-74	B-	2.7	Approaching good performance
65-69	C+	2.3	Exceeding satisfactory performance
60-64	C	2.0	Satisfactory – basic understanding of the subject matter.
55-59	C-	1.7	Approaching satisfactory performance
53-54	D+	1.3	Marginal Pass. Insufficient preparation for subsequent courses in the same subject
50-52	D	1.0	Minimal pass – marginal performance; generally insufficient preparation for subsequent courses in the same subject.
0-49	F	0	Fail – Failure to meet course requirements.

**Graduate:** <https://www.ucalgary.ca/pubs/calendar/current/f-1-2.html>

- All grades of "C+" or lower are indicative of failure at the graduate level and cannot be counted toward Faculty of Graduate Studies course requirements. Individual programs may require a higher passing grade.

Learning Technologies and Requirements:	<p>There is a D2L site for this course which contains required readings and other relevant class resources and materials (<a href="http://d2l.ucalgary.ca">d2l.ucalgary.ca</a>).</p> <p>To successfully engage in their learning experiences at the University of Calgary, students taking online, remote, and blended courses are required to have reliable access to the following technology:</p> <ul style="list-style-type: none"> <li>• A computer with a supported operating system, as well as the latest security, and malware updates</li> <li>• A current and updated web browser</li> <li>• Webcam (built-in or external)</li> <li>• Microphone and speaker (built-in or external) or headset with microphone</li> <li>• Current antivirus and/or firewall software enabled</li> <li>• Broadband internet connection</li> </ul>
Academic Standing:	For more information go to <a href="http://www.ucalgary.ca/pubs/calendar/current/f.html">http://www.ucalgary.ca/pubs/calendar/current/f.html</a>
Academic Accommodation:	<p>It is the student's responsibility to request academic accommodations according to the University policies and procedures listed below. The Student Accommodations policy is available at <a href="https://ucalgary.ca/student-services/access/prospective-students/academic-accommodations">https://ucalgary.ca/student-services/access/prospective-students/academic-accommodations</a>.</p> <p>Students needing an accommodation based on disability or medical concerns should contact Student Accessibility Services (SAS) in accordance with the Procedure for</p>

	<p>Accommodations for Students with Disabilities (<a href="https://ucalgary.ca/legal-services/sites/default/files/teams/1/Policies-Accommodation-for-Students-with-Disabilities-Procedure.pdf">https://ucalgary.ca/legal-services/sites/default/files/teams/1/Policies-Accommodation-for-Students-with-Disabilities-Procedure.pdf</a>). Students who require an accommodation in relation to their coursework based on a protected ground other than Disability should communicate this need in writing to their Instructor.</p> <p>SAS will process the request and issue letters of accommodation to instructors. For additional information on support services and accommodations for students with disabilities, visit <a href="http://www.ucalgary.ca/access/">www.ucalgary.ca/access/</a></p>
Academic integrity, plagiarism:	<p>Academic Misconduct refers to student behavior which compromises proper assessment of a student's academic activities and includes: cheating; fabrication; falsification; plagiarism; unauthorized assistance; failure to comply with an instructor's expectations regarding conduct required of students completing academic assessments in their courses; and failure to comply with exam regulations applied by the Registrar.</p> <p>For more information go to <a href="http://www.ucalgary.ca/pubs/calendar/current/k.html">http://www.ucalgary.ca/pubs/calendar/current/k.html</a> or <a href="http://www.ucalgary.ca/pubs/calendar/current/e-2.html">http://www.ucalgary.ca/pubs/calendar/current/e-2.html</a> Additional information is available on the Academic Integrity Website at <a href="https://ucalgary.ca/student-services/student-success/learning/academic-integrity">https://ucalgary.ca/student-services/student-success/learning/academic-integrity</a></p>
Internet and electronic communication device:	<p>The use of laptop and mobile devices is acceptable when used in a manner appropriate to the course and classroom activities. Please refrain from accessing websites and resources that may be distracting to you or for other learners during class time.</p> <p>Students are responsible for being aware of the University's Internet and email use policy, which can be found at <a href="https://ucalgary.ca/legal-services/sites/default/files/teams/1/Policies-Acceptable-Use-of-Electronic-Resources-and-Information-Policy.pdf">https://ucalgary.ca/legal-services/sites/default/files/teams/1/Policies-Acceptable-Use-of-Electronic-Resources-and-Information-Policy.pdf</a></p>
Deferral of Term work and exams	<p>For more information about deferring a final exam go to <a href="https://www.ucalgary.ca/registrar/exams/deferred-exams">https://www.ucalgary.ca/registrar/exams/deferred-exams</a> For more information about deferral of term work go to <a href="http://www.ucalgary.ca/pubs/calendar/current/g-7.html">http://www.ucalgary.ca/pubs/calendar/current/g-7.html</a> <a href="https://www.ucalgary.ca/live-uc-ucalgary-site/sites/default/files/teams/14/deferred_termwork-feb-2020_revised.pdf">https://www.ucalgary.ca/live-uc-ucalgary-site/sites/default/files/teams/14/deferred_termwork-feb-2020_revised.pdf</a></p>
Intellectual Property & Copyright:	<p>All students are required to read the University of Calgary policy on Acceptable Use of Material Protected by Copyright (<a href="https://ucalgary.ca/legal-services/sites/default/files/teams/1/Policies-Acceptable-Use-of-Material-Protected-by-Copyright-Policy.pdf">https://ucalgary.ca/legal-services/sites/default/files/teams/1/Policies-Acceptable-Use-of-Material-Protected-by-Copyright-Policy.pdf</a>) and requirements of the copyright act (<a href="https://laws-lois.justice.gc.ca/eng/acts/C-42/index.html">https://laws-lois.justice.gc.ca/eng/acts/C-42/index.html</a>) to ensure they are aware of the consequences of unauthorized sharing of course materials (including presentations, textbooks, posted notes, labs, case studies, assignments, and exams).</p> <p>Students who use material protected by copyright in violation of this policy may be disciplined under the Non-Academic Misconduct Policy <a href="https://www.ucalgary.ca/pubs/calendar/current/k.html">https://www.ucalgary.ca/pubs/calendar/current/k.html</a></p>
Freedom of Information and Protection of Privacy:	<p>Student information will be collected in accordance with typical (or usual) classroom practice. Students' assignments will be accessible only by the authorized course faculty. Private information related to the individual student is treated with the utmost regard by the faculty at the University of Calgary.</p> <p>For more information go to <a href="https://www.ucalgary.ca/registrar/student-centre/privacy-policy">https://www.ucalgary.ca/registrar/student-centre/privacy-policy</a></p>

Ethics	<p>Whenever you perform research with human participants (i.e., surveys, interviews, or observation) as part of your university studies, you are responsible for following university research ethics guidelines. Your instructor must review and approve of your research plans and supervise your research.</p> <p>For more information go to <a href="http://www.ucalgary.ca/pubs/calendar/current/e-5.html">http://www.ucalgary.ca/pubs/calendar/current/e-5.html</a> or <a href="https://www.ucalgary.ca/research/researchers/ethics-compliance/chreb">https://www.ucalgary.ca/research/researchers/ethics-compliance/chreb</a></p>
Student Support:	<p>Please visit this link for important information on:</p> <ul style="list-style-type: none"> <li>• Wellness and Mental health resources</li> <li>• Emergency Evacuation/Assembly Points</li> <li>• Student Success and more....</li> </ul> <p><a href="https://www.ucalgary.ca/registrar/registration/course-outlines">https://www.ucalgary.ca/registrar/registration/course-outlines</a></p>
Studio Procedures:	<p>Please view current updates from RISK and the Covidsafe page links to information on rapid testing, masking rules, vaccination regulations and documentation as well as a FAQs page, which must all be followed while in Studios.</p> <p><a href="https://www.ucalgary.ca/risk/emergency-management/covid-19-response">https://www.ucalgary.ca/risk/emergency-management/covid-19-response</a>  <a href="https://www.ucalgary.ca/risk/emergency-management/covid-19-response/covidsafe-campus">https://www.ucalgary.ca/risk/emergency-management/covid-19-response/covidsafe-campus</a></p>
Arts Students' Centre Program Advising:	<p>Have a question but not sure where to start? The Arts Students' Centre is your information resource for everything in the Faculty of Arts. Call us at 403-220-3580 or email us at <a href="mailto:ascarts@ucalgary.ca">ascarts@ucalgary.ca</a>.</p> <p>You can also visit the Faculty of Arts website at <a href="http://arts.ucalgary.ca/undergraduate">http://arts.ucalgary.ca/undergraduate</a> which has detailed information on common academic concerns.</p>
Faculty of Graduate Studies:	<p>For graduate studies email: <a href="mailto:graduate@ucalgary.ca">graduate@ucalgary.ca</a> or call 403 220 4938.  Visit the Faculty of Graduate Studies for more details: <a href="https://grad.ucalgary.ca/">https://grad.ucalgary.ca/</a></p>