

# Course Outline – Anthropology 357

## Archaeological Methods

### General Information

Course #	357
Term	Fall
Year	2020
Course pre-requisite(s)	ANTH 201 and one other course in archaeology
Course schedule (day and time of class)	Friday 1:05 pm-03:55 pm
Number of credits	3

### Instructor Information

Name	Callan Ross-Sheppard
E-mail	Callan.ross-sheppard@mcgill.ca
Virtual office hours	T/Th 3:00-4:00 or by appointment
Communication plan*	For office hours book a time slot using Calendly: <a href="https://calendly.com/callan-357/15min">https://calendly.com/callan-357/15min</a>

### TA Information

Name	Jennifer Craig
E-mail	jennifer.craig2@mail.mcgill.ca

### Course Overview

This course is designed to introduce students to the basic methodologies used by archaeologists working in the lab and the field, and in both the academic and commercial contexts (Cultural Resource Management/Heritage Management). The course covers the formulation of research strategies, criteria for selection of archaeological methodologies, principles behind the application of these methods, and the potential results of these methods. We will also examine the often-unideal circumstances that can accompany real world archaeology and discuss how we as archaeologists deal with these circumstances. Also covered is the use of ideas and methods from the natural and physical sciences and the application of these theories and methods to archaeological projects. A strong theme throughout this course will be the role theory has in guiding the selection of archaeological methods, and how archaeological methodology contributes to developing stronger justifications for archaeological reasoning.

The primary objectives of the course are as follows:

- 1) Provide a broad introduction to archaeological methodologies, archaeological methodological research paradigms, and how archaeologists use the methodologies and theories of the natural and physical sciences to achieve their goals.
- 2) Provide training in performing some of the basic analytical work used by archaeologists in the field and lab.
- 3) Provide some explanation of the difficult realities of field and lab archaeology, and some strategies for addressing common issues that arise in field and lab.

#### Instructor Message Regarding Remote Delivery

This course has been adapted for remote delivery due to the ongoing pandemic. This is a significant change for this course as in previous years this course had a large fieldwork and groupwork component. To adapt to the remote delivery context, the emphasis of the course has shifted to other areas of archaeological methodology (particularly analytical methodologies that take place in a lab environment) while still covering the basis for field techniques. There are challenges associated with delivering and taking a course like this in an online framework. This is especially so during the added stress of a global pandemic. However, I am committed to doing my best to make this learning environment as supportive as possible and adaptable to diverse student needs. McGill has developed some resources for assisting in the transition to remote learning that I encourage you to take a look at ([Remote Learning Resources](#)).

#### Learning Outcomes

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

- 1) Identify a range of the more common methodologies employed by archaeologists in the field and laboratory.
- 2) Perform some of the basic analytical tasks involved in several of these methods.
- 3) Be able to evaluate the use of methods in archaeological reports and presentations (i.e. journal articles and books, conference presentations, popular media, archaeological reports).
- 4) Be able to correctly select methods that would aid in answering specific archaeological questions.

#### Instructional Method

This course will be taught entirely online due to the situation with COVID-19. Lectures will be delivered via Zoom each week at the usual fixed class time (for more information regarding Zoom please check out McGill's ([Remote Learning Resources](#))). Additional short explanatory videos will also be posted detailing the application of several methodologies (particularly those related to the assignments). Lecture slides will also be posted for each week to ensure students who may not be able to participate in any given week will have access to that content.

## Required Readings

There is no textbook for this class. Instead a series of required readings will be posted on MyCourses for each week as well as a selection of optional recommended readings. I may change or add weekly readings depending on our progress. If I add new readings these will replace others listed in the syllabus. In addition to weekly readings individual lab assignments may have required readings you will need to engage with to successfully complete written labs. These will typically not be listed on the syllabus.

## Evaluation

### **Methodology Assignments (80%)**

Throughout the course 7 methodology assignments will be posted to mycourses. Students must complete 4 of these assignments but may choose which assignments will comprise their 4 assignments. The rest of the assignments will be skipped. I highly recommend not waiting and picking the last 4 assignments of the course! Each assignment will count towards 20% of the final grade. These assignments will vary somewhat in format according to the topic. Each assignment will be due two weeks after it has been uploaded. These assignments provide experience dealing with real world archaeological data and their completion will involve students performing archaeological analyses, much as a professional archaeologist would. All assignments will be individual, be completed at home and there will be no groupwork. These assignments will be due two weeks after they have been posted (before the regularly scheduled class time of that week). All assignments should be submitted via myCourses (see: [FAQs for students using myCourses: Assignments](#)).

### **Research Design Assignment (20%)**

A final written assignment will be given on November 20th and due prior to the last class of the semester. This assignment is required for all and may not be skipped like the methodology assignments. It will consist of several questions requiring long form answers and is designed to solidify the comprehension of the course material. In this assignment students will be asked to apply the principles they have learnt over the course to a novel archaeological situation. Answers must be no longer than two double spaced pages (12pt font).

## Handing in Late Assignments

Assignments must be uploaded to MyCourses by the assigned date. Late assignments are penalized 10% of the mark per day including weekends and holidays. Extensions for valid reasons can be obtained with documentation before the due date.

## Additional Materials

Some assignments will require the use of specific pieces of software (specifically: Google Earth Pro, OxCal, MyStat or SPSS or Microsoft Excel). These pieces of software are all either freely available to students online (Google Earth Pro, OxCal and MyStat) or available for free through [McGill IT services](#) (Excel). However, if students do not have access to a device that can run these pieces of software, then there are enough assignment options provided so that students can complete the course without using any of these pieces of software.

Name of Assignment	Required Software	Due Date	% of final grade
Satellite Survey Assignment	Google Earth Pro	Oct 16 <sup>th</sup>	Four assignments must be completed, each worth 20% of the final grade
Relative Dating Assignment		Oct 23 <sup>rd</sup>	
Harris Matrix Assignment		Oct 30 <sup>th</sup>	
Classification and Typology Assignment		Nov 6 <sup>th</sup>	
Radiocarbon Calibration Assignment	OxCal	Nov 13 <sup>th</sup>	
Optical Petrography Assignment		Nov 20 <sup>th</sup>	
Obsidian Sourcing Assignment	MyStat or Excel	Nov 27 <sup>th</sup>	
Research Design Assignment		Nov 27 <sup>th</sup>	20%

## Detailed Course Schedule and Reading Assignments

### Week 1 - September 4<sup>th</sup>: Archaeological Practice, Archaeological Science and the Relationship(s) of Method and Theory

#### **Required Readings:**

Dark, K.R. 1995 The Framework of Archaeological Reasoning. In *Theoretical Archaeology* pp. 36-64. Cornell University Press, Ithaca.

Martinón-Torres, M. and Killick, D., 2015. "Archaeological theories and archaeological sciences". In *The Oxford Handbook of Archaeological Theory*. J. Preston (Ed), Oxford:New York

Zimmerman, L.J. and K. M. Branam. 2014 Collaborating with Stakeholders. In *Archaeology in Practice: A Student Guide to Archaeological Analyses* (pp. 1-25).

#### **Additional Readings:**

Killick, D. 2015. "The awkward adolescence of archaeological science". *Journal of Archaeological Science*. 56: 242-247.

### Week 2 – September 11<sup>th</sup>: Archaeological Probability and Graphing

#### **Required Readings:**

Shennan, S. 1997. *Quantifying Archaeology* (2<sup>nd</sup> Edition). Edinburgh University Press: Edinburgh  
(Chapter 2)

Van Pool, T.L., and Leonard, R.D. 2011. *Quantitative Analysis in Archaeology*. Wiley-Blackwell: Chichester  
(Chapters 3 and 5)

#### **Additional Reading:**

Van Pool, T.L., and Leonard, R.D. 2011. *Quantitative Analysis in Archaeology*. Wiley-Blackwell: Chichester  
Chapter 6

### Week 3 – September 18<sup>th</sup>: Research Design and Sampling Strategies

#### **Required Readings:**

Shafer, H. 2009 Research Design and Sampling Techniques. In *Field Methods in Archaeology* (pp. 21-25).

Banning, E.B. 2002. *The Archaeologist's Laboratory: The Analysis of Archaeological Data*. Kluwer: New York. Chapter 4. (Research Design and Sampling)

Drennan R.D. 2009 *Statistics for Archaeologists* (2<sup>nd</sup> Edition). Springer: New York (Chapter 20 Sampling and Reality)

**Additional Reading:**

Hole, B.L. 1980. Sampling in Archaeology: A Critique. *Annual Review of Archaeology*. 9:217-234.

**Week 4 – September 25<sup>th</sup>: Survey, Remote Sensing and Site Location:****Required Readings:**

Sullivan, A. et al. 2007 Archaeological Survey Design, units of observation, and the characterization of regional variability. *American Antiquity* 72(2): 322-333.

Caspari, G., Plets, G., Balz, T. and Fu, B., 2017. Landscape archaeology in the Chinese Altai Mountains—Survey of the Heiliutan Basin. *Archaeological Research in Asia*, 10, pp.48-53.

Bennett, G., 2015. » I Spy with my Little Eye «: GIS and Archaeological Perspectives on Eleventh Century Song Envoy Routes in the Liao Empire (Kitan-Liao Archaeological Survey and History KLASH). *Medieval Worlds* 1:71-85

**Additional Reading:**

Myers, A., 2010. Camp Delta, Google Earth and the ethics of remote sensing in archaeology. *World Archaeology*, 42(3), pp.455-467.

Kowalewski, S.A., 1990. Merits of full-coverage survey: Examples from the Valley of Oaxaca, Mexico. *The Archaeology of regions: a case for full-coverage survey*, pp.33-85.

**Week 5 - October 2<sup>nd</sup>: Site Mapping, investigation and Excavation:****Required Readings:**

Fladmark, K. 1978 Site Mapping.

Johansen, P. and A. Bauer. 2015. Beyond Culture History at Maski: Land Use, Settlement and Social Differences in Neolithic through Medieval South India. *Archaeological Research in Asia* 1-2: 6-16.

Ladefoged, T.N., McLachlan, S.M., Ross, S.C., Sheppard, P.J. and Sutton, D.G., 1995. GIS-based image enhancement of conductivity and magnetic susceptibility data from Ureturituri Pa and Fort Resolution, New Zealand. *American Antiquity*, pp.471-481.

**Additional Reading:**

Clark, A. 1990. *Seeing Beneath the Soil: prospecting methods in archaeology*. London: Batsford.

[English Heritage Guide to Geophysical Survey](#)

**Week 6 - October 9<sup>th</sup>: Soils and Sediments****Required Readings:**

Stein, J.K. 1988. Interpreting Sediments in Cultural Settings. In J. Stein and W. Farrand (eds) Archaeological sediments in Context. Orono: University of Maine.

Balme, J. and A. Paterson. 2014 Stratigraphy. In Archaeology in Practice: A Student Guide to Archaeological Analyses (pp. 26- 46).

Harris, E. 1989 Principles of Archaeological Stratigraphy, pp. 138-154.

**Additional Reading:**

Wilson, C.A., Davidson, D.A. and Cresser, M.S., 2008. Multi-element soil analysis: an assessment of its potential as an aid to archaeological interpretation. *Journal of Archaeological Science*, 35(2), pp.412-424.

Sullivan, K.A. and Kealhofer, L., 2004. Identifying activity areas in archaeological soils from a colonial Virginia house lot using phytolith analysis and soil chemistry. *Journal of Archaeological Science*, 31(12), pp.1659-1673.

**Week 7 - October 16<sup>th</sup>: Classification and Typology**

**Required Readings:**

Read, Dwight W. 2007. *Artifact Classification: A Conceptual and Methodological Approach*, Taylor & Francis Group. (Introduction and Chapter 2)

Tomášková, S., 2005. What is a burin? Typology, technology, and interregional comparison. *Journal of Archaeological Method and Theory*, 12(2), pp.79-115.

**Additional Reading:**

Ford, J.A. 1954 On the concept of Types. *American Anthropologist* 56: 42-54.

Bingqi, S., 1988. New Issues in Archaeological Typology. *Chinese Sociology & Anthropology*, 20(4), pp.68-72.

Allen, M.S., 1996. Style and function in East Polynesian fish-hooks. *Antiquity*, 70(267), pp.97-116.

**Week 8 - October 23<sup>rd</sup>: Archaeological Chronology**

**Required Readings:**

Dethlefsen, E. and J. Deetz. 1966. "Death's heads, Cherubs and Willow trees: Experimental Archaeology in Colonial cemeteries". *American Antiquity* 31(4): 502-510.

Malainey, M.E., 2010. *A consumer's guide to archaeological science: analytical techniques*. Springer Science & Business Media. – Chapters 3 (Intro to Decay) and 6 (Radiocarbon).

Banning, E.B. 2002. *The Archaeologist's Laboratory: The Analysis of Archaeological Data*. Kluwer: New York. (Chapter 15)

**Additional Reading:**

Weisler, M.I., Collerson, K.D., Feng, Y.X., Zhao, J.X. and Yu, K.F., 2006. Thorium-230 coral chronology of a late prehistoric Hawaiian chiefdom. *Journal of Archaeological Science*, 33(2), pp.273-282.

O'Brien, M.J. and Lyman, R.L. 2002. Seriation, Stratigraphy, and Index Fossils: The Backbone of Archaeological Dating. Kluwer: (Chapter 1)

**Week 9 - October 30<sup>th</sup>: Lithic Analysis and Experimental Archaeology****Required Readings:**

Pokotylo, D. 1988. Blood from Stone: making and using stone tools in prehistoric British Columbia. Museum Note 11. UBC Museum of Anthropology.

Clarkson, C. And S. O'Connor. 2014 An Introduction to Stone Artifact Analysis. In *Archaeology in Practice: A Student Guide to Archaeological Analyses* (pp. 151-194).

Sheppard, P.J., 2004. Moving Stones: Comments on the archaeology of spatial interaction in New Zealand. In: L. Furey and S. Holdaway (Editors), *Change Through Time: 50 Years of New Zealand Archaeology*. New Zealand Archaeological Association, Auckland, pp. 147- 168.

**Additional Reading:**

Keeley, L.H. and Newcomer, M.H., 1977. Microwear analysis of experimental flint tools: a test case. *Journal of archaeological science*, 4(1), pp.29-62.

**Week 10 - November 6<sup>th</sup>: Ceramic Analysis and Optical Petrography:****Required Readings:**

Orton, C., & Hughes, M. (2013). *Pottery in Archaeology* (2nd ed., Cambridge Manuals in Archaeology). Cambridge: Cambridge University Press. (Chapters 2 and 4)

Tite MS. 2008. Ceramic Production, Provenance and Use: A Review. *Archaeometry* 50:216-31

Degryse, P. and Braekmans, D. 2016. Petrography: Optical Microscopy. In *The Oxford Handbook of Archaeological Ceramic Analysis*, edited by Hunt, Alice. Oxford University Press: Oxford.

**Week 11 - November 13<sup>th</sup>: Archaeological Chemistry - Compositional Analyses****Required Readings:**

Pollard, M.A., and Heron, C. 2008. *Archaeological Chemistry* (2<sup>nd</sup> ed.). Royal Society of Chemistry: Cambridge. (Chapter 1)

Speakman, R.J. and Shackley, M.S., 2013. Silo science and portable XRF in archaeology: a response to Frahm. *Journal of Archaeological Science*, 40(2), pp.1435-1443.

Frahm, E., 2013. Validity of “off-the-shelf” handheld portable XRF for sourcing Near Eastern obsidian chip debris. *Journal of Archaeological Science*, 40(2), pp.1080-1092.

**Additional Reading:**

Makarewicz, C.A. and Sealy, J., 2015. Dietary reconstruction, mobility, and the analysis of ancient skeletal tissues: expanding the prospects of stable isotope research in archaeology. *Journal of Archaeological Science*, 56, pp.146-158.

Perry, M.A., Coleman, D.S., Dettman, D.L., Grattan, J.P. and al-Shiyab, A.H., 2011. Condemned to metallum? The origin and role of 4th–6th century AD Phaeno mining camp residents using multiple chemical techniques. *Journal of archaeological science*, 38(3), pp.558-569.

**Week 12 - November 20<sup>th</sup>: Guest Lecture: Maritime Archaeology and Watery Sciences**

**Readings TBA**

**Week 13 - November 27<sup>th</sup>: Pollen, Charcoal and Archaeoentomology:**

**Required Readings:**

Banning, E.B. 2002. *The Archaeologist’s Laboratory: The Analysis of Archaeological Data*. Kluwer: New York. Chapter (Chapter 11)

Kolb, M.J. and Murakami, G.M., 1994. Cultural dynamics and the ritual role of woods in pre-contact Hawai’i. *Asian perspectives*, pp.57-78.

Dussault, F., Forbes, V. and Bain, A., 2014. Archaeoentomology at Tatsip Ataa: Evidence for the use of local resources and daily life in the Norse Eastern Settlement, Greenland. *Journal of the North Atlantic*, 2014(sp6), pp.14-28.

**Additional Reading:**

Kahn, J.G. and Coil, J., 2006. What house posts tell us about status difference in prehistoric Tahitian society: an interpretation of charcoal analysis, sacred woods and inter-site variability. *The Journal of the Polynesian Society*, 115(4), pp.319-352.

## **McGill Policy Statements**

### **Academic Integrity**

- "McGill University values academic integrity. Therefore, all students must understand the meaning and consequences of cheating, plagiarism and other academic offences under the Code of Student Conduct and Disciplinary Procedures (see [www.mcgill.ca/students/srr/honest/](http://www.mcgill.ca/students/srr/honest/) for more information).(approved by Senate on 29 January 2003)

"L'université McGill attache une haute importance à l'honnêteté académique. Il incombe par conséquent à tous les étudiants de comprendre ce que l'on entend par tricherie, plagiat et autres infractions académiques, ainsi que les conséquences que peuvent avoir de telles actions, selon le Code de conduite de l'étudiant et des procédures disciplinaires (pour de plus amples renseignements, veuillez consulter le site [www.mcgill.ca/students/srr/honest/](http://www.mcgill.ca/students/srr/honest/))."

### **Language of Submission**

- "In accord with McGill University's Charter of Students' Rights, students in this course have the right to submit in English or in French any written work that is to be graded." (approved by Senate on 21 January 2009 - see also the section in this document on Assignments and evaluation.)

"Conformément à la Charte des droits de l'étudiant de l'Université McGill, chaque étudiant a le droit de soumettre en français ou en anglais tout travail écrit devant être noté (sauf dans le cas des cours dont l'un des objets est la maîtrise d'une langue)."

### **Other Policy Statements**

- "The [University Student Assessment Policy](#) exists to ensure fair and equitable academic assessment for all students and to protect students from excessive workloads. All students and instructors are encouraged to review this Policy, which addresses multiple aspects and methods of student assessment, e.g. the timing of evaluation due dates and weighting of final examinations."
- "© Instructor-generated course materials (e.g., handouts, notes, summaries, exam questions) are protected by law and may not be copied or distributed in any form or in any medium without explicit permission of the instructor. Note that infringements of copyright can be subject to follow up by the University under the Code of Student Conduct and Disciplinary Procedures."
- "As the instructor of this course I endeavor to provide an inclusive learning environment. However, if you experience barriers to learning in this course, do not hesitate to discuss them with me and the [Office for Students with Disabilities](#), 514-398-6009."
- "McGill University is on land which has long served as a site of meeting and exchange amongst Indigenous peoples, including the Haudenosaunee and Anishinabeg nations. We acknowledge and thank the diverse Indigenous people whose footsteps have marked this territory on which peoples of the world now gather."

« L'Université McGill est sur un emplacement qui a longtemps servi de lieu de rencontre et d'échange entre les peuples autochtones, y compris les nations Haudenosaunee et Anishinabeg. Nous reconnaissons et remercions les divers peuples autochtones dont les pas ont marqué ce territoire sur lequel les peuples du monde entier se réunissent maintenant. »

- “[End-of-course evaluations](#) are one of the ways that McGill works towards maintaining and improving the quality of courses and the student’s learning experience. You will be notified by e-mail when the evaluations are available. Please note that a minimum number of responses must be received for results to be available to students.”
- “In the event of extraordinary circumstances beyond the University’s control, the content and/or evaluation scheme in this course is subject to change.”