

PALEO-ONCOLOGY, EXPLORATIONS IN THE HISTORY OF CANCER Fall 2022

Instructor: Dr. Thomas J. Siek
Email: siekti@mcmaster.ca
Phone: 905-525-9140 Ext. 24159

Office: CNH 513
Seminar: UH 101, Thurs, 11:30-14:20
Office Hours: Thurs, by appointment

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Course Description

This seminar will introduce paleo-oncology, the study of cancer in the past. It will draw on varying fields of inquiry, including bioarchaeology, palaeopathology, and medical history, to further our understanding of neoplastic disease and to help realize its potential impact on past populations and societies.

Course Objectives

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

- Conceptualize cancer as a multi-faceted disease
- Have a baseline understanding of cancer in a biological context
- Discuss and critically evaluate theoretical models and methods related to studying cancer in the past
- Develop research and writing skills through written assignments
- Develop public speaking skills through oral presentations

Required Texts

There is no required textbook for this course. Most of the required readings will be academic articles, which are accessible through McMaster's library. In some cases, where a digital copy is not easily available (such as book chapters), a copy will be posted on Avenue to Learn.

Class Format

This seminar class is being held in-person. You are highly encouraged to come to class as your participation is incorporated in your final mark. The class is broken into two parts: a live lecture, followed by a student-led class discussion.

Course Evaluation – Overview

1. Attendance	5%
2. Participation	5%
3. Posting Reply and Discussion	10%
4. Mock Research Proposal	30%
5. Abstract	15%
6. Presentation	35%

Course Evaluation – Details

Attendance (5%), Ongoing Throughout the Term

A portion of your grade will be based on your attendance in this class. There will be a sign-in sheet for every class to track your attendance and you are expected to stay for the entire scheduled session; please try not to book appointments during class time. The grade is broken down as follows:

Attend:

- >11 classes = 5%
- 9-10 classes = 3%
- 6-8 classes = 1.5%
- <6 classes = 0%

Participation (5%), Ongoing Throughout the Term

As this is a seminar course and part of your grade is based on class discussion, you will be required to prepare and submit at least one discussion question each week before the start of class. The question must be open-ended and related to that week's topic. These questions will be made anonymous and randomly selected as a prompt for class discussion. The grade is broken down as follows:

Submit at least one discussion question for:

- >11 classes = 5%
- 9-10 classes = 3%
- 6-8 classes = 1.5%
- <6 classes = 0%

Posting Reply and Discussion (10%), Ongoing Throughout the Term

Each week, a posting relating to the topic will be made available on Avenue to Learn. This may involve a news article, a short video, an item of pop culture, etc. You will be asked to prepare and submit a short reply and/or comment for each posting, drawing on the course readings, as well as your own cursory research and opinions. During class, an anonymous posting reply will be randomly selected and shared with the group to initiate discussion.

Mock Research Proposal (30%), due 06 October

You will prepare a mock research project proposal based on a topic of your choice, relevant to the themes of the course. The goal is to develop suggestions or ideas for research of the type undertaken by those applying to graduate school or working in research and development in the commercial sector. This will include developing an appropriate research question, researching the topic's background, identifying appropriate materials and methods, timeline, etc. Further information will be given in class.

Abstract (15%), due 10 November

You will prepare an abstract for the presentation that you will be giving at the end of the course. Abstracts should clearly state the aim of the presentation, the context and background, the sources investigated, the preliminary results, their possible implications, and be summarized with a conclusion. Further information will be given in class.

Presentation (35%), due 01 December

You will prepare an oral presentation based on a topic of your choice, relevant to the themes of the course. The topic may be linked to your research proposal, but it must be tied to your previously submitted abstract. The presentation must not exceed the time limit and will be followed by a brief Q&A period. The presentations will be delivered to the group during the last two weeks of term; however, all presentation materials must be submitted to the instructor by the above due date. You will be informed of the time of your presentation during the course. Further information will be given in class.

Weekly Course Schedule and Required Readings

Week 1 (8 September)

Syllabus Review; Introduction to Paleo-Oncology

Readings:

None.

Week 2 (15 September)

Cancer in a Clinical Context

Readings:

National Cancer Institute. 2021. "What is Cancer?". <https://www.cancer.gov/about-cancer/understanding/what-is-cancer>

Hakim D, Pelly T, Kulendran M, Caris J. 2015. Benign tumours of the bone: A review. *Journal of Bone Oncology* 4: 37-41. [Note: Due to a publishing error, the last table in this paper is a garbled mess. You can find the correct table on Avenue to Learn.]

Coleman RE, Brown J, Holen I. 2020. Bone Metastases. In: Niederhuber JE, Armitage JO, Doroshow JH, Kastan MB, Tepper JE (eds). *Abeloff's Clinical Oncology, Sixth Edition*. Elsevier: Philadelphia. Pp. 809-830.

Note: Due to a publishing error, the last table in Hakim et al. 2015 is a garbled mess. You can find the correct table on Avenue to Learn. Coleman et al. 2020 is available through the McMaster Library.

Week 3 (22 September)

Cancer in Paleopathology

Readings:

Hunt K, Roberts C, Kirkpatrick C. 2018. Taking stock: A systematic review of archaeological evidence of cancers in human and early hominin remains. *International Journal of Paleopathology* 21: 12- 26.

Marques C, Santos AL, Cunha E. 2013. Better a broader diagnosis than a misdiagnosis: The Study of a neoplastic condition in a male individual who died in early 20th century (Coimbra, Portugal). *International Journal of Osteoarcheology* 23: 664-675.

Rubini M, Gozzi A, Libianchi N, Dellù E, Spanò F, Di Biasi C, Pendenza M, Sala P, Filannino, Zaio P. 2022. Metastatic cancer and edentulism: Exploring comorbidity to assist with differential diagnosis in case from Vico nel Lazio (Fr, Italy), 13th-15th century CE. *International Journal of Paleopathology* 38: 1-12.

Biehler-Gomez L, Giordano G, Cattaneo C. 2019. The overlooked primary: bladder cancer metastasis on dry bone. A study of the 20th century CAL Milano Cemetery skeletal collection. *International Journal of Paleopathology* 24: 130-140.

Week 4 (29 September)

History of Cancer

Readings:

Weiss L. 2000. Early concepts of cancer. *Cancer and Metastasis Reviews* 19: 205-217

Hajdu SI. 2012. A note from history: Landmarks in history of cancer, part 3. *Cancer* 118: 1115-1168

Hajdu SI. 2012. A note from history: Landmarks in history of cancer, part 4. *Cancer* 118: 4914-4928

Hajdu SI. 2013. A note from history: Landmarks in history of cancer, part 5. *Cancer* 119: 1450-1466

Week 5 (6 October)

Cancer in Art & Iconography

Readings:

Bianucci R, Perciaccante A, Charlier P, Appenzeller O, Lippi D. Earliest evidence of malignant breast cancer in Renaissance paintings. *The Lancet Oncology* 19: 166-167.

Pestle WJ, Colvard M. 2013. A disease without history? Evidence for the antiquity of head and neck cancers. In: Radosevich, J. (ed.) *Head & Neck Cancer: Current Perspectives, Advances, and Challenges*. Dodrecht: Springer, 5-36.

Nelson JK. 2021. Cancer in Michelangelo's Night: An analytical framework for retrospective diagnoses. In Henderson J, Jacobs F, Nelson JK (eds.), *Representing Infirmity: Diseased Bodies in Renaissance Italy*. New York: Routledge, 3-27

Note: Research Proposal Due on Avenue to Learn by 10:30am. Nelson 2021 is available online through the McMaster Library.

Week 6 (13 October)

Reading Week ☺

Readings:

None.

Week 7 (20 October)

Cancer & Mummified Remains

Readings:

Fornaciari G. 2018. Histology of ancient soft tissue tumors: A review. *International Journal of Paleopathology* 21: 64-76.

Zimmerman MR. 1977. An experimental study of mummification pertinent to the integrity of cancer. *Cancer* 40: 1358-1362.

Aufderheide AC. 2011. Soft tissue taphonomy: A paleopathology perspective. *International Journal of Paleopathology* 1: 75-80.

Week 8 (27 October)

Documentary: The Food Cure

Mabrouk S. 2018. *The Food Cure*. Gravitas Ventures

Note: This documentary is available via Kanopy and can be accessed with your McMaster login details.

Week 9 (3 November)

Cancer & Age

Readings:

Appleby J. 2017. Ageing and the Body in Archaeology. *Cambridge Archaeological Journal* 28: 145-163.

Cave C, Oxenham M. 2014. Identification of the archaeological 'invisible elderly': An approach illustrated with an Anglo-Saxon example. *International Journal of Osteoarchaeology* 26: 163-175.

Getz SM. 2020. The use of transition analysis in skeletal age estimation. *WIREs Forensic Science* 2: e1378.

Week 10 (10 November)

Ancient Carcinogens

Readings:

Whitley C, Boyer J. 2018. Assessing cancer risk factors faced by an Ancestral Puebloan population in the North American Southwest. *International Journal of Paleopathology* 21: 166-177.

Christensen J, Ryhl-Svendsen M. 2015. Household air pollution from wood burning in two reconstructed houses from the Danish Viking Age. *Indoor Air* 25: 329-340.

Siek TJ, Rando C, Spinek AE, Cieřlik A, Waldron T. 2021. Malignancy in three mediaeval Polish osteological collections. *Journal of Archaeological Science: Reports* 40: 103246.

Note: Abstract due on Avenue to Learn by 10:30am.

Week 11 (17 November)

Cancer in Other Species

Readings:

Odes EJ, Randolph-Quinney PS, Steyn M, Throckmorton Z, Smilg JS, Zipfel B, de Beer F, Hoffman JW, Franklin RD, Berger LR. 2016. Earliest hominin cancer: 1.7-million-year-old osteosarcoma from Swartkrans Cave, South Africa. *South African Journal of Science* 112: 47-55.

Albuquerque TAF, Drummond do Val L, Doherty A, de Magalhães JP. 2018. From humans to hydra: Patterns of cancer across the tree of life. *Biological Reviews* 93: 1715-1734

Ekhtiari S, Chiba K, Popovic S, Crowther R, Wohl G, Wong AKO, Tanke DT, Dufault DM, Geen OD, Parasu N, Crowther MA, Evans DC. 2020. First case of osteosarcoma in a dinosaur: A multimodal diagnosis. *The Lancet Oncology* 21: 1021-1022

Week 12 (24 November)

Cancer & Paleoepidemiology

Readings:

Zuckerman M, Harper K, Armelagos G. 2015. Adapt or die: Three case studies in which the failure to adopt advances from other fields has compromised paleopathology. *International Journal of Osteoarcheology* 26: 375-383.

Marques C, Roberts C, Matos VMJ, Buikstra JE. 2021. Cancers are rare diseases: terminological, theoretical, and methodological biases. *International Journal of Paleopathology* 32: 111-122.

Optional: Waldron T. 2007. *Palaeoepidemiology: The Epidemiology of Human Remains*. Left Coast Press. Chapters 2, 4 & 5

Week 13 (1 December)

Student Presentations

Readings:

None

Note: Presentations due on Avenue to Learn by 10:30am.

Week 14 (8 December)

Student Presentations Spill Over & Final Remarks

Readings:

None.

Course Policies

Submission of Assignments

All assignments are to be submitted to Avenue to Learn on the due date, by 10:30am EST, unless stated otherwise. Please convert all assignment files to PDF before submission. File formats other than PDF will not be accepted, unless stated otherwise. If you have technical problems when submitting an assignment, take a screenshot that shows your submission screen and desktop clock/date as a timestamp. Refer to Avenue to Learn Support page for help.

Late Submissions and Extensions

You are expected to submit all assignments on the due date. All assignment deadlines are clearly marked in the syllabus and are made known to students at the beginning of the term by the instructor. There will be a 5% penalty for every day the assignment is late, for up to five days, including weekends. After five days from the original deadline, late submissions will not be accepted. If you feel that your assignment will be late due to reasons out of your control, please contact Dr. Siek in advance to discuss the matter with him. Extensions will only be given under extenuating circumstances and will be no longer than one week after the original due date. Ensure you frequently make backup copies of your work and please note that having a lot of other course work is not grounds for an extension.

Assignment Regrading

If you disagree with a grade that you have received, please follow these steps:

1. Wait 24 hours after viewing your mark, then re-read your assignment. Consider the assignment criteria guidelines and your instructor's feedback.
2. Seek more feedback: if you require more information about your grade, contact Dr. Siek and ask for further feedback.
3. Formally request a re-appraisal via email to Dr. Siek. Write a 300-word (min.) statement explaining why you believe the assessment was mistaken and submit it to Dr Siek along with the original assignment (with feedback). Your statement must directly reference the assignment guidelines.
4. Dr. Siek will re-assess your work, and return it to you within 72 hours. Please note, requesting a re-appraisal does not guarantee that your grade will be increased.

Email Policy

Please email Dr. Siek if you have concerns or specific questions about the course or assignments. Ensure you use your McMaster email address for all communications and always include the full course code in the subject line Please allow up to 48 hours for a reply. In general, emails sent during the weekend or in the middle of the night (i.e., after 22:00) will not receive a reply until the morning of the next business day. Before emailing with questions about course content, deadlines, assignments, etc., please refer to the course syllabus, the Anthropology Department website, and the university website.

Please reserve emails to Dr. Siek only when you have exhausted all other options or if it is a personal concern that will affect your performance in the class.

Grades

Grades will be based on the McMaster University grading scale:

MARK	GRADE	Qualitative Scale (Unofficial)
90-100	A+	Exceptional performance: strong evidence of original thinking; good organization; capacity to analyze and synthesize; superior grasp of subject matter with sound critical evaluations; evidence of extensive knowledge base.
85-90	A	
80-84	A-	
77-79	B+	Competent performance: evidence of grasp of subject matter; some evidence of critical capacity and analytic ability; reasonable understanding of relevant issues; evidence of familiarity with the literature.
73-76	B	
70-72	B-	
67-69	C+	Adequate performance: understanding of the subject matter; ability to develop solutions to simple problems in the material; acceptable but uninspired work, not seriously faulty but lacking style and vigour.
63-66	C	
60-62	C-	
57-59	D+	
53-56	D	
50-52	D-	
0-49	F	Inadequate performance: little or no evidence of understanding of the subject matter; weakness in critical and analytic skills; limited or irrelevant use of the literature.

Avenue to Learn

In this course we will be using Avenue to Learn. Students should be aware that, when they access the electronic components of this course, private information such as first and last names, usernames 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.

Turnitin.com

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 to go www.mcmaster.ca/academicintegrity.

University Policies

Faculty of Social Sciences E-mail Communication Policy

Effective September 1, 2010, it is the policy of the Faculty of Social Sciences that all e-mail communication sent from students to instructors (including TAs), and from students to staff, must originate from the student's own McMaster University e-mail account. This policy protects confidentiality and confirms the identity of the student. It is the student's responsibility to ensure that communication

is sent to the university from a McMaster account. If an instructor becomes aware that a communication has come from an alternate address, the instructor may not reply at his or her discretion.

Privacy Protection

In accordance with regulations set out by the Freedom of Information and Privacy Protection Act, the University will not allow return of graded materials by placing them in boxes in departmental offices or classrooms so that students may retrieve their papers themselves; tests and assignments must be returned directly to the student. Similarly, grades for assignments for courses may only be posted using the last 5 digits of the student number as the identifying data. The following possibilities exist for return of graded materials:

1. Direct return of materials to students in class.
2. Return of materials to students during office hours.
3. Students attach a stamped, self-addressed envelope with assignments for return by mail.
4. Submit/grade/return papers electronically.

Arrangements for the return of assignments from the options above will be finalized during the first class.

Course Modification

The instructor and university reserve the right to modify elements of the course during the term. The university may change the dates and deadlines for any or all courses in extreme circumstances. 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. It is the responsibility of the student to check his/her McMaster email and course websites weekly during the term and to note any changes.

ADVISORY STATEMENTS

ACADEMIC INTEGRITY

You are expected to exhibit honesty and use ethical behaviour in all aspects of the learning process. Academic credentials you earn are rooted in principles of honesty and academic integrity. **It is your responsibility to understand what constitutes academic dishonesty.**

Academic dishonesty is to knowingly act or fail to act in a way that results or could result in unearned academic credit or advantage. This behaviour 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. For information on the various types of academic dishonesty please refer to the [Academic Integrity Policy](https://secretariat.mcmaster.ca/university-policies-procedures-guidelines/), located at <https://secretariat.mcmaster.ca/university-policies-procedures-guidelines/>

The following illustrates only three 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.
- improper collaboration in group work.
- copying or using unauthorized aids in tests and examinations.

AUTHENTICITY / PLAGIARISM DETECTION

Some courses may use a web-based service (Turnitin.com) to reveal authenticity and ownership of student submitted work. For courses using such software, students will be expected to submit their work electronically either directly to Turnitin.com or via an online learning platform (e.g. A2L, etc.) using plagiarism detection (a service supported by Turnitin.com) so it can be checked for academic dishonesty.

Students who do not wish their work to be submitted through the plagiarism detection software must inform the Instructor before the assignment is due. No penalty will be assigned to a student who does not submit work to the plagiarism detection software. **All submitted work is subject to normal verification that standards of academic integrity have been upheld** (e.g., on-line search, other software, etc.). For more details about McMaster's use of Turnitin.com please go to www.mcmaster.ca/academicintegrity.

COURSES WITH AN ON-LINE ELEMENT

Some courses may use on-line elements (e.g. e-mail, Avenue to Learn (A2L), LearnLink, web pages, capa, Moodle, ThinkingCap, etc.). Students should be aware that, when they access the electronic components of a course using these elements, private information such as first and last names, usernames 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 a course that uses on-line elements will be deemed consent to this disclosure. If you have any questions or concerns about such disclosure, please discuss this with the course instructor.

ONLINE PROCTORING

Some courses may use online proctoring software for tests and exams. This software may require students to turn on their video camera, present identification, monitor and record their computer activities, and/or lock/restrict their browser or other applications/software during tests or exams. This software may be required to be installed before the test/exam begins.

CONDUCT EXPECTATIONS

As a McMaster student, you have the right to experience, and the responsibility to demonstrate, respectful and dignified interactions within all of our living, learning and working communities. These expectations are described in the [Code of Student Rights & Responsibilities](#) (the “Code”). All students share the responsibility of maintaining a positive environment for the academic and personal growth of all McMaster community members, **whether in person or online**. It is essential that students be mindful of their interactions online, as the Code remains in effect in virtual learning environments. The Code applies to any interactions that adversely affect, disrupt, or interfere with reasonable participation in University activities. Student disruptions or behaviours that interfere with university functions on online platforms (e.g. use of Avenue 2 Learn, WebEx or Zoom for delivery), will be taken very seriously and will be investigated. Outcomes may include restriction or removal of the involved students’ access to these platforms.

ACADEMIC ACCOMMODATION OF STUDENTS WITH DISABILITIES

Students with disabilities who require academic accommodation must contact [Student Accessibility Services](#) (SAS) at 905-525-9140 ext. 28652 or sas@mcmaster.ca to make arrangements with a Program Coordinator. For further information, consult McMaster University’s [Academic Accommodation of Students with Disabilities](#) policy.

REQUESTS FOR RELIEF FOR MISSED ACADEMIC TERM WORK

McMaster Student Absence Form (MSAF): In the event of an absence for medical or other reasons, students should review and follow the Academic Regulation in the Undergraduate Calendar “Requests for Relief for Missed Academic Term Work”: <https://academiccalendars.romcmaster.ca/content.php?catoid=44&navoid=9020#requests-for-relief-for-missed-academic-term-work>

ACADEMIC ACCOMMODATION FOR RELIGIOUS, INDIGENOUS OR SPIRITUAL OBSERVANCES (RISO)

Students requiring academic accommodation based on religious, indigenous or spiritual observances should follow the procedures set out in the [RISO](#) policy. Students should submit their request to their Faculty Office **normally within 10 working days** of the beginning of term in which they anticipate a need for accommodation or to the Registrar’s Office prior to their examinations. Students should also contact their instructors as soon as possible to make alternative arrangements for classes, assignments, and tests.

COPYRIGHT AND RECORDING

Students are advised that lectures, demonstrations, performances, and any other course material provided by an instructor include copyright protected works. The Copyright Act and copyright law protect every original literary, dramatic, musical and artistic work, **including lectures** by University instructors. The recording of lectures, tutorials, or other methods of instruction may occur during a course. Recording may be done by either the instructor for the purpose of authorized distribution, or by a student for the purpose of personal study. Students should be aware that their voice and/or image may be recorded by others during the class. Please speak with the instructor if this is a concern for you.

EXTREME CIRCUMSTANCES

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.). Changes will be communicated through regular McMaster communication channels, such as McMaster Daily News, A2L and/or McMaster email.