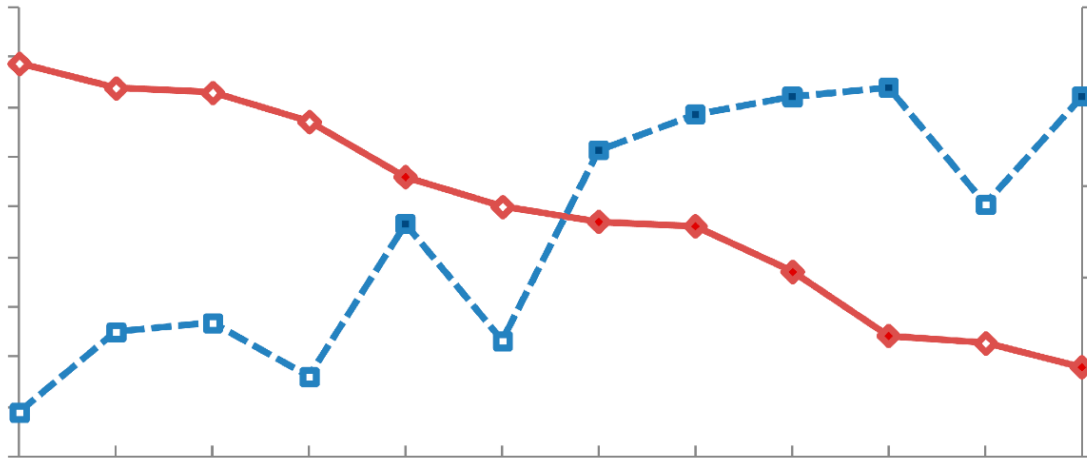


ARCL0111: PREVENTIVE CONSERVATION



2023-24, Term 1

MA module
15 credits

Coordinator: JILL SAUNDERS

Coordinator's email: j.m.saunders@ucl.ac.uk

PGTA support: Max Chesnokov maxim.chesnokov.20@ucl.ac.uk

Coordinator's room number and office hours: 201, Tuesdays 2-4 pm (online office hours)

IMPORTANT INFORMATION REGARDING ASSESSMENTS:

The **coursework coversheet** is available on the course Moodle pages and here: <https://www.ucl.ac.uk/archaeology/current-students> under "Policies, Forms and Guidelines".

Please enter **your five-digit candidate code on the coversheet and in the subject line** when you upload your work in Moodle.

Please use **your five-digit candidate code as the name of the file** you submit.

Please refer to <https://www.ucl.ac.uk/archaeology/current-students/ioa-student-handbook/13-information-assessment>

<https://www.ucl.ac.uk/archaeology/current-students/ioa-study-skills-guide/referencing-effectively-and-ioa-guidelines>

<https://www.ucl.ac.uk/students/exams-and-assessments/academic-integrity>

<https://library-guides.ucl.ac.uk/referencing-plagiarism/acknowledging-AI>

for instructions on coursework submission, IoA referencing guidelines and marking criteria, as well as UCL policies on penalties for late submission, over-length work, the use of text generation software (AI) and academic misconduct.

1. MODULE OVERVIEW

1.1 Module description

Over recent years, the emphasis in conservation has turned increasingly from remedial conservation (putting right what has gone wrong in the past) to preventive conservation (minimizing or eliminating things which could go wrong in the future). This shift in emphasis has been evident in both object conservation and site conservation. This course provides a wide-ranging and challenging introduction to preventive conservation, covering key causes of degradation and strategies for managing change. The course is concerned primarily with the care of objects and artefacts as opposed to structures and sites and provides an introduction to environmental management and practical aspects of preventive conservation such as Integrated Pest Management (IPM), pollution and environmental assessment and microclimate control. This course illustrates distinctions between theory and practice, and the importance of reflective response to broad contextual factors when considering preventive strategies.

1.2 Module Aims

In addition to providing an introduction to environmental management and to some of the practical aspects of preventive conservation, this module examines underlying issues, such as the appropriateness and feasibility of prescriptive guidelines for environmental control. On successful completion of this course a student should:

- be aware of the main processes by which objects deteriorate, whether within the museum environment in storage or on display
- know how to stabilise objects by the control of their environment
- be able to define a viable set of environmental parameters for a wide range of material types and operational contexts
- understand how to monitor the environment in a gallery, storeroom or show case, and make recommendations for implementing necessary improvements

1.3 Learning Outcomes

On successful completion of the course students should be able to demonstrate/have developed an ability to:

- critically analyse numerical data and be aware of its significance
- undertake critical analysis of diverse literature
- be able to understand the implications of guidance documents in order to communicate their significance to others and act upon their recommendations

1.4 Method of Assessment

Technical Report (1500 words) due Friday 9th December 2023 (midnight).

1.5 Communications

- [Moodle](#) is the main hub for this course.
- Important information will be posted by staff in the Announcements section of the Moodle page and you will automatically receive an email notification for these.
- Please post any general queries relating to module content, assessments and administration in [Module Q&A](#) or via email if you prefer.
- For personal queries, please contact the co-ordinator by email (j.m.saunders@ucl.ac.uk).

1.6 Week-by-week summary

Week	Date	Topic	Lecturers
1	05.10.23	Introduction to Preventive Conservation	JS, IC
2	12.10.23	Relative Humidity	JS, ER
3	19.10.23	Handling, Packaging, and Transport	EK, GM
4	26.10.23	Preventive Conservation in Context	CW, GR, JS
5	02.11.23	Environmental Management and Microclimates	MC, TC
6		<i>READING WEEK (no classes)</i>	
7	16.11.23	Light	COG
8	23.11.23	Pollution	DS, TG
9	30.11.23	Integrated Pest Management (IPM)	EK, GM
10	07.12.23	Disaster Planning	MQC, JS
11	14.12.23	Critical Reflections and Module Review	JS, SM

1.7 Lecturers (or other contributors):

COG	Caitlin O'Grady	Lecturer	UCL (IoA)
CW	Catriona Wilson	Head of Egyptian and Sudanese Archaeology Collection, Petrie Museum	UCL (Museums and Cultural Programmes)
DS	Dean Sully	Associate Professor	UCL (Institute of Archaeology)
EK	Emmy Kingsland	Conservator	UCL (Culture Operations)
ER	Erika Range	Conservator	Canada Aviation and Space Museum
GM	Graeme McArthur	Conservator	UCL (Culture Operations)
GR	Gemma Renshaw	Collections Manager	UCL (Culture Operations)
IC	Ian Carroll	Conservation Collections Manager	UCL (IoA)
JS	Jill Saunders	Lecturer (Teaching) in Conservation	UCL (IoA)
LI	Libby Ireland	Sculpture and Installations Conservator	Tate (Acquisitions)
MC1	Max Chesnokov	Conservation Technician	UCL (IoA)
MC2	Michael Chaplin	Technical Director	Click Netherfield
MQC	Mitzy Quinto	PhD Student	UCL (Institute of Archaeology)
	Cortes		
SM	Stefan Michalski	Senior Conservation Scientist	Canadian Conservation Institute (CCI)(Preservation Services Division)
TC	Tobit Curteis	Managing Partner	Tobit Curteis Associates LLP.
TG	Timea Grego	Laboratory and Field Technician	UCL (Institute of Archaeology)

1.8 Weekly Module Plan

The module is taught predominantly through lectures, seminars, and practical activities. In-person classes which you must attend on campus will take place **Thursdays 9:00 am - 11:50 pm in B13 (IoA)** and will consist of lectures, planned activities, and discussions. Students are required to undertake the essential readings as stipulated in this handbook before each live class to support understanding and facilitate participation. Most weeks students are also required to view short videos and/or complete activities in advance of the live class. See 3. SYLLABUS and check Moodle for information on weekly requirements.

1.9 Workload

This is a 15-credit module which equates to 150 hours of learning time including session preparation, background reading, and researching and writing your assignments. With that in mind you should expect to organise your time in roughly this way:

30 hours	Staff-led teaching sessions (lectures, seminars, tutorials, discussion-board sessions)
60 hours	Self-guided session preparation (reading, listening, note-taking and online activities), c.6.5 hours a week
60 hours	Reading, data analysis, and writing of Technical Report

2. ASSESSMENT

The assignment will be discussed in class, in advance of the submission deadline. All students will also participate in related formative assessment. If students are unclear about the nature of an assignment, they should discuss this with the Module Coordinator in advance (via office hours or class Moodle forum). You will receive feedback on your written coursework via Moodle, and have the opportunity to discuss your marks and feedback with the coordinator in their office hours. For more details see the '[ARCL0111 Assessment Booklet](#)' on Moodle.

The coursework coversheet is available on the course Moodle pages and here: <https://www.ucl.ac.uk/archaeology/current-students> under "Policies, Forms and Guidelines".

Please make sure you enter your five-digit candidate code on the coversheet and in the subject line when you upload your work in Moodle.

Please use your five-digit candidate code as the name of the file you submit.

The [IoA marking criteria](#) can be found in the IoA Student Handbook (Section 13: Information on assessment). The [IoA Study Skills Guide](#) provides useful guidance on writing different types of assignment.

Please note that **late submission**, **exceeding the maximum word count** and **academic misconduct (unacknowledged use of text generation software and plagiarism)** will be penalized and can significantly reduce the mark awarded for the assignment and/or overall module result. Please do consult

- <https://www.ucl.ac.uk/archaeology/current-students/ioa-student-handbook/13-information-assessment> with sections 13.7–13.8: coursework submission, 13.10: word count, 13.12–14: academic integrity
- <https://www.ucl.ac.uk/students/exams-and-assessments/academic-integrity> for UCL's guidance on academic integrity
- <https://library-guides.ucl.ac.uk/referencing-plagiarism/acknowledging-AI> for UCL's guidance on how to acknowledge the use of text generation software.

2.1 Technical Report (1500 words)

N.B. The use of software to generate content is not allowed for assessments for this course and will be penalised; the use of software for language and writing review and improvement is permitted, and the software and the way it has been used must be indicated in the relevant boxes on the coursework coversheet. UCL defines language and writing review as checking "areas of academic writing such as structure, fluency, presentation, grammar, spelling, punctuation, and language translation".

In summative assessment for this module, you will play the role of a preventive conservator generating advice for UCL Library, Culture, Collections & Open Science (LCCOS) concerning a Collection Store next to the Object Based Learning Lab (OBLL). This space has only recently been designated as a location in which to store objects and does not have environmental controls. Many different objects from across UCL's collections are stored here at different times. You should be mindful of this when considering risks and advice. Please see the 'Assessment' section on the [module Moodle page](#) for more information about this space and how it is currently used and monitored. You are also expected to visit the Collection Store to make your own observations. Visits will be arranged in pairs via the Moodle scheduler under 'Assessment' on the [module Moodle page](#).

You are provided with recent T and RH data for this location and must produce a Technical Report explaining the issues as you understand them, detailing your advice for management of the situation using preventive conservation techniques (please do not recommend any interventive treatments), and explaining the reasons behind your advice. Your report should include images, diagrams, tables, and charts where relevant. You may wish to include suggestions regarding both immediate actions and ongoing monitoring and management. Remember to show awareness of socio-cultural contexts as well as scientific parameters when presenting your recommendations and to explain your decision-making e.g. heritage use and values, resource limitations etc.

Your report must not exceed 1500 words, is due on Friday December 8th and will be worth 100% of your final mark for this module.

All data files and important information provided by the stakeholders are available on Moodle on the [ARCL0111 module page](#) under 'Assessment'.

3. RESOURCES AND PREPARATION FOR CLASS

Preparation for class

You are expected to read the essential readings as well as watching any videos and completing any online activities on Moodle each week. Completing the readings is essential for your effective participation in the activities and discussions that we will do, and it will greatly enhance your understanding of the material covered. Ideally this should be supplemented with selected readings from the recommended list. Further readings provided on the online list give you a sense of the range of current work on a given topic and are a starting point for your research for assessments. Be sure to familiarise yourself with planned activities and discussions for each live class in advance so that any necessary resources are downloaded and/or ready to use.

Please see 'Basic texts and Online Resources' on the Moodle Module Homepage for important background information to complement the week-by-week readings. Please also refer to the [Online Reading List](#) linked to the library for easy access to extended reading suggestions.

4. SYLLABUS

All essential readings are available online through www.ucl.ac.uk/library or via the link provided with the entry. All recorded lectures will be made available on Moodle or via the link provided with the entry. All live classes are to be attended in person at IoA, B13. Remember to check Moodle for additional activities and live class details!

Week 1 Introduction to Preventive Conservation



VIDEOS TO WATCH

1.1 Introduction to Preventive Conservation

An overview of the theory of preventive conservation including a brief history of the field and key contemporary issues and themes.



ESSENTIAL READING

CCI, 2017. *Agents of deterioration*. <https://www.canada.ca/en/conservation-institute/services/agents-deterioration.htm>

Lambert, S. 2014. The Early History of Preventive Conservation in Great Britain and the United States (1850–1950)
<https://doi.org/10.4000/ceroart.3765>

Padfield, T. 2005. How to keep for a while what you want to keep forever
https://www.conservationphysics.org/phdk/phdk_tp.pdf

Thickett, D. 2018. Frontiers of Preventive Conservation. *Studies in Conservation: IIC 2018 Turin Congress Preprints*, 63, 1, 262-67.

Tse, N., Labrador, A., Scott, M., and Balarbar, R. 2018. Preventive Conservation: People, Objects, Place and Time in the Philippines. *Studies in Conservation*, 63, 1, 274-81.

RECOMMENDED READING

Boersma, F. 2016. Preventive Conservation-more than 'dusting Objects'? An Overview of the Development of the Preventive Conservation Profession. *Journal of the Institute of Conservation*, 39, 1, 3-17.

Clavir, M. 1994. Preserving Conceptual Integrity: Ethics and Theory in Preventive Conservation. *Studies in Conservation: Preprints of the Contributions to the Ottawa Congress, 12-16 September, Preventive Conservation: Practice, Theory and Research*, 39, 2, 53-57.

Clemetson, L., 2005. History is slipping away as collections deteriorate. *The New York Times*, 6 December 2005. <https://www.nytimes.com/2005/12/06/arts/history-is-slipping-away-as-collections-deteriorate-report-says.html>

Michalski, S. and Karsten, I., 2018. The Cost-effectiveness of Preventive Conservation Actions. *Studies in Conservation*, 63, 1, 187-194.

Michalski, S. 1994. A Systematic Approach to Preservation: Description and Integration with Other Museum Activities. *Studies in Conservation: Preprints of the Contributions to the Ottawa Congress, 12-16 September, Preventive Conservation: Practice, Theory and Research*, 39, 2, 8-11.

Rose, C., L., Hawks, C., A., and Waller, R. A. 2019. Preventive Conservation Approach to the Storage of Collections. In Elkin, L., and Norris, C., A., (eds.). New York: Society for the Preservation of Natural History; American Institute for Conservation of Historic and Artistic Works; Smithsonian Institution; The George Washington University Museum Studies Program. 43-55.

https://www.researchgate.net/profile/Robert_Waller4/publication/335682131_A_Preventive_Conservation_Approach_to_the_Storage_of_Collections/links/5d74393b92851cacdb293dd2/A-Preventive-Conservation-Approach-to-the-Storage-of-Collections.pdf

Staniforth, S. Ed. 2013. *Historical Perspectives on Preventive Conservation. Readings in Conservation*. Los Angeles: Getty Conservation Institute.

Thomson, G. 1994. *The Museum Environment*. London: Butterworths.

Holl, K., Kilian, R., Klemm, L., Lengsfeld, K., Bichlmair, S., and Krus, M. 2018. Sustainable Museum Storage Buildings for Long-term Preservation, *Studies in Conservation*, 63, 1, 366-368.



LIVE CLASS B13 – THURSDAY OCTOBER 5TH 9:00-11:50 BST

Introductory lectures (JS):

1.2 Plan for the Term

An overview of the aims and structure of the module, and the theory of preventive conservation including a brief history of the field and key contemporary issues and themes.

1.3 Agents of Deterioration

An overview of the 10 key issues affecting material heritage and how they can cause undesirable change to or destruction of object surfaces and structures, and an introduction to the different ways in which the various threats to material heritage can be mitigated and managed in heritage settings.

1.4 Assessment

An introduction to formative and summative assessment. Group allocations for formative assessment.

Introductory activity in the Leventis Gallery (IC, JS, MC1)

Assessment group discussion (JS, MC1)

Week 2 Relative Humidity



VIDEOS TO WATCH

2.1 Temperature and Relative Humidity

A short video to refresh your memory and re-introduce some basic points:

<https://manual.museum.wa.gov.au/temperature-and-relative-humidity>

[2.2 Relative Humidity Challenges at Ingenium Canada \(ER\)](#)

[2.3 Relative Humidity Challenges at Ingenium Canada - Canadair CP-107 Argus \(ER & MB\)](#)

This lecture will explore practical challenges of implementing RH control through a fascinating case study - The Argus.



ESSENTIAL READING

Ashley-Smith, J., Umney, N., and Ford, D. 1994. Let's Be Honest - Realistic Environmental Parameters for Loaned Objects. *Studies in Conservation: Preprints of the Contributions to the Ottawa Congress, 12-16 September 1994. Preventive Conservation: Practice, Theory and Research*, 39, 2, 28-31.

CCI, 2018. *Silica Gel: Passive Control of Relative Humidity*. Technical Bulletin 33. <https://www.canada.ca/en/conservationinstitute/services/conservation-preservation-publications/technical-bulletins/silica-gelrelative-humidity.html>

Michalski, S., 2016. Climate guidelines for heritage collections: where we are in 2014 and how we got here. *Proceedings of the Smithsonian Institution. Summit on Museum Preservation Environment*, 7-32. https://smithsonian.figshare.com/articles/book/Proceedings_of_the_Smithsonian_Institution_Summit_on_the_Museum_Preservation_Environment/9761864

Thickett, D., 2018. Frontiers of Preventive Conservation. In *Studies in Conservation*, 63, 1, 262-267.

Thomson, G. 1994. *The Museum Environment*. London: Butterworths. 66-127.

RECOMMENDED READING

Arends, T., et al., 2019. Relating relative humidity fluctuations to damage in oak panel paintings by a simple experiment. *Studies in Conservation*, 64, 2, 101-114.

Brimblecombe, P., Thickett, D. and Yoon, Y.H., 2009. The cementation of coarse dust to indoor surfaces. *Journal of Cultural Heritage*, 10, 3, 410-414.

Ferreira, C., de Freitas, V., P., and Delgado, J., M., P., Q. 2019. The Influence of Hygroscopic Materials on the Fluctuation of Relative Humidity in Museums Located in Historical Buildings. *Studies in Conservation*, 65, 3, 127-141.

Holl, K., et al., 2018. Sustainable Museum Storage Buildings for Long-term Preservation. In *Studies in Conservation*, 63, 1, 366-368.

Koob, S., P., van Giffen, N., A., R., Kunicki-Goldfinger, J., J., and Brill, R., H. 2018. Caring for Glass Collections: The Importance of Maintaining Environmental Controls. *Studies in Conservation*, 63, 1, 146- 150.



LIVE CLASS B13 – THURSDAY OCTOBER 12th 9:00-11:50 BST

Relative humidity lectures (JS):

[2.4 Relative Humidity in Focus](#)

Controlling the amount of moisture in the air is one of the mainstays of preventive conservation in museums. However, in recent years, the need for tight guidelines has been increasingly questioned...

[2.5 Monitoring Equipment](#)

An overview of the different equipment used to measure RH, how they operate, and decision-making about data acquisition methodology.

2.6 Understanding Data

An introduction to interpreting RH data.

Assessment Discussion (JS)

Measuring relative humidity activity (JS)

Week 3 Object Support: Handling, Packing, Transport, and Display



VIDEOS TO WATCH

[3.1 Transport and Display: Part 1 \(LI\)](#)

[3.2 Transport and Display: Part 2 \(LI\)](#)

[3.3 Transport and Display: Part 3 \(LI\)](#)

When transporting and displaying a collection, it is imperative to provide the conditions for the correct handling and protection of the diverse objects. These lectures will explore best practice through case studies involving organic and inorganic materials.



ESSENTIAL READING

Constantine, fine art logistics for private collectors, museums and galleries. Choose a couple of case studies to read: <http://www.const.co.uk/projects/>

MOMART, art storage, art transport and installation service. Choose a couple of case studies to read: <https://www.momart.com/case-studies>

Museum Handbook, Part 1: Museum Collections. <https://www.nps.gov/museum/publications/MHI/MHI.pdf>
Chapter 6: Handling, Packing and Shipping.

Torres, J., Gallagher, K., J., Balachandran, S., & Lisa Anderson. 2017. Rehousing a 'Working Collection': Perspectives from the Johns Hopkins University Archaeological Museum, *Journal of the American Institute for Conservation*, 56, 2, 96-112.

RECOMMENDED READING

Brusius, M. and Singh, K. Eds. 2018. *Museum Storage and Meaning /: Tales from the Crypt*. Routledge Research in Museum Studies, 14. London: Routledge. Introduction, 1-35.

Chatterjee, H., MacDonald, S., Prytherch, D., and Noble, G. Eds. 2008. *Touch in Museums: Policy and Practice in Object Handling*. Oxford: Berg.

Dunn, B., Gray, M., N., Hoppenbrouwers, N., & Velagapudi, N. 2018. Moving a collection: Issues in the documentation, transportation, and storage of the Freemasons Victoria collection, *AICCM Bulletin*, 39, 2, 107-115.

Kieffer, C.L., Clifton, J. and Mendoza, L., 2017. Moving and Transforming Care of One of the Largest Southwest Archaeological Collections: The Museum of Indian Arts and Culture's Move to the Center for New Mexico Archaeology. *Collection Forum* 31, 1, 34-52.

Kipp, A. 2016. *Managing Previously Unmanaged Collections: A Practical Guide for Museums*. Lanham: Rowman & Littlefield.

Pye, E. Ed. 2016. *The power of touch: handling objects in museum and heritage context*. London: Routledge.

Rose C., R., and de Torres A. R., 1992. *Storage of natural history collections: ideas and practical solutions*. Pittsburgh: Society for the Preservation of Natural History Collections.

Nunberg, S., Eckelman, M., J., & Pamela Hatchfield. 2016. Life Cycle Assessments of Loans and Exhibitions: Three Case Studies at the Museum Fine Arts, Boston, *Journal of the American Institute for Conservation*, 55, 1, 2-11.

Stolow, N., 1987. *Conservation and exhibitions: packing, transport, storage and environmental considerations*. London: Butterworths. Chapter 4: Preparation and Handling; Chapter 6 Traditional and Newer Packaging Techniques; Chapter 10 Transportation Modes, Strategies and Equipment.

Shelley, M. 1987. *The Care and Handling of Art Objects: Practices in The Metropolitan Museum of Art*. https://www.metmuseum.org/art/metpublications/The_Care_and_Handling_of_Art_Objects_Practices_in_The_Metropolitan_Museum_of_Art



LIVE CLASS OBLL – THURSDAY OCTOBER 19TH 9:30-11:50 BST

Handling and packing lectures (EK, GM):

3.4 Object Awareness: Handling Objects (EK)

3.5 Object Awareness: Packing and Moving (EK)

3.6 Object Awareness: Hazards (GM)

These lectures will introduce safe procedures for handling and packaging objects, whether they are being conserved, studied, transported, or displayed. An introduction to hazards in collections will also be presented.

Handling and packing activity (EK, GM)

Week 4 Preventive Conservation in Context
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VIDEOS TO WATCH

4.1 Small Independent Museum (CW)

4.2 Local Authority Museum Service (CW)

4.3 UCL Museums (CW)

4.4 National Institutions (GR)

These lectures explore how preventive conservation priorities and approaches may vary according to context and resources available.



ESSENTIAL READING

Bülow, A.E., Stitt, J., Brokerhof, A.W., 2018. 'I Can See Further Now: Preventive Conservation in a Changing World', *Studies in Conservation*, 2018, 63, 1, 35-42.

Collections Trust. 2013. *Using Benchmarks to Sustain Collections: Case Studies in Collections Management*: https://collectionstrust.org.uk/wp-content/uploads/2016/11/BENCHMARKS-Case_Studies_FINAL_03.pdf

British Library, 2017. Caring for British Library Collections: Position Paper and Strategic Direction 2017-2022. Download pdf. From the link available at <https://www.bl.uk/conservation#>.

Canadian institute of conservation, The ABC Method: a risk management approach to the preservation of cultural heritage, available at <https://www.canada.ca/en/conservation-institute/services/risk-management-heritage-collections/abc-method-risk-management-approach.html> Overview, 7-35.

RECOMMENDED READING

Kipp, A., 2016. *Managing Previously Unmanaged Collections: A Practical Guide for Museums*, Lanham: Rowman and Littlefield. Chapters 7, 8 and 9, 85-138.

Henry, M., C., and Jessup, Wendy C. 2018. From the Outside In: A Collaborative Approach to Context-Driven and Capacity-Constrained Preventive Conservation Strategies for Collections in Heritage Buildings and Sites. *Studies in Conservation*, 63, 1, 121-26.

Horemans, B., Schalm, O., Wael, K., D., Cardell, C., and Grieken, R. V. 2012. Atmospheric Composition and Microclimate in the Alhambra Monument, Granada (Spain), in the Context of Preventive Conservation. *IOP Conference Series. Materials Science and Engineering*, 37.

Strlic, M., Grossi, C., M., Dillon, C., Bell, N., Fouseki, K., Brimblecombe, P., Menart, E., Ntanos, K., Lindsay, W., Thickett, D., France, F., and De Bruin, G. 2015. Damage Function for Historic Paper. Part I: Fitness for Use. *Heritage Science*, 3, 1, 1-12.



LIVE CLASS B13 – THURSDAY OCTOBER 26th 9:00-11:50 BST

Formative Assessment Project: group presentations and discussion

Preventive conservation in context group activity: real-life scenarios, what would you do? (JS, CW, GR)

Week 5 Microclimates and Environmental Monitoring
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VIDEOS TO WATCH

5.1 Display Case Design & Microclimates (MC)

A technical overview of the factors which influence display case design with a focus on microclimates, air change, and environmental control.



ESSENTIAL READING

Bradley, S., 2005. Preventive Conservation Research and Practice at the British Museum. In *Journal of the American Institute for Conservation*, 44, 3, 159-173.

Camuffo, D., S., G. and Valentino, A., 2000. Showcases: a really effective mean for protecting artworks? *Thermochimica Acta*, 365, 1-2, 65–77.

Odlyha, M., Slater, J., M., Grøntoft, T., Jakiela, S., Obarzanowski, M., Thickett, D., Hackney, S., Andrade, G., Wadum, J., Christensen, A., H., and Scharff, M. 2018. A Portable Tool for the Evaluation of Microclimate Conditions within Museum Enclosures, Transit Frames, and Transport Cases. In *Studies in Conservation*, 63, 1, 407-410.

Curteis, T., and Croft, S. 2016. Assessing the Impact of Heritage Projects on Building Environment. *The Building Conservation Directory*.

<https://www.buildingconservation.com/articles/environmental-performance/environmental-performance.htm>

Curteis, T. 2018. The Cathedrals of England: Environmental Performance, Conservation and Exhibitions. *Studies in Conservation: IIC 2018 Turin Congress Preprints* 63, 1, 70-75.

RECOMMENDED READING

Pender, R., Curteis, T., Ridout, B. Eds. 2014. *Building Environment*. London: Ashgate.

Curteis, T. 2004. Environmental Conditions in Historic Churches: Examining their effect on wall paintings and polychrome surfaces, *Transactions of the Ecclesiastical Architects and Surveyors Association*, 5, 36-46.

Curteis, T., Lithgow, K., and Bullock, L., 2007. Managing External Environments through Preventive Conservation: The Investigation and Control of Environmentally Caused Deterioration of the Decorative Surfaces in the Marlborough Pavilion, Chartwell, Kent. In Padfield, T., and Borchersen, K. Eds. 2007. *Museum Microclimates, Contributions to the Conference in Copenhagen, 19-23 November 2007*, 175–184.

Perino, M., 2018. Air tightness and RH control in museum showcases: Concepts and testing procedures. *Journal of Cultural Heritage*, 34, 277–290.

Romano, F., *et al.*, 2015. Passive Control of Microclimate in Museum Display Cases: A Lumped Parameter Model and Experimental Tests. *Journal of Cultural Heritage*, 16, 4, 413-18.

Saunders, D., 2020. *Museum Lighting – A Guide for Conservators and Curators*. Los Angeles: The Getty Conservation Institute

Schieweck, A. and Salthammer, T., 2009. Emissions from Construction and Decoration Materials for Museum Showcases. *Studies in Conservation*, 54, 4, 218-235.

Thomson, G. 1994. *The Museum Environment*. London: Butterworths.



LIVE CLASS B13 – THURSDAY NOVEMBER 2ND 9:00-11:50 BST

09:00-10:15 Assessment support (JS)

An optional assessment study session to discuss your progress with the Technical Report with the course coordinator and/or your colleagues.

10:30-11:50 Preventive Practice in Real-Life: The Building Envelope and Other Problems (TC)

A reflective account of preventive practice in real life with fascinating case studies detailing abundant problems! The lecture will be followed by a questions and discussion sessions with Tobit Curteis.

Week 6 – READING WEEK NO LECTURES

Week 7 Light



VIDEOS TO WATCH – none this week!



ESSENTIAL READING

Brokerhof, A., Kuiper, P. and Scholten, S., 2018. Spread or Sacrifice: Dilemma for Lighting Policies. *Studies in Conservation*, 63, 1, 28-34.

Rogge, C. E. and Shullman, A., 2016. The effects of ultraviolet and visible light on common furs: colour changes, photooxidation and the use of Tinuvin 292 as a photoprotectant. *Collection Forum*, 30, 1, 15-33.

Thomson, G. 1994. *The Museum Environment*. London: Butterworths. 2-64.

RECOMMENDED READING

Ashley-Smith, J., 1999. Risk assessment for object conservation. Chapter 12: Light entertainment. 226-245.

Brommelle, N. S., 1964. The Russell and Abney Report on the action of light on watercolours. *Studies in Conservation*, 9, 4, 140-152.

Farke, M., Binetti, M. and Hahn, O. 2016. Light damage to selected organic materials in display cases: a study of different light sources. In *Studies in conservation* 61, 1, 83-93.

Ford, B. and Smith, N. 2011. Lighting guidelines and the lightfastness of Australian indigenous objects at the National Museum of Australia. In Bridgland, J. (ed). 2011. *ICOM-CC 16th triennial conference Lisbon 19-23 September 2011: preprints*. Lisbon: Criterio-Producao Grafica, Lda. 1-13. Available online: https://www.microfading.com/uploads/1/1/7/3/11737845/0409_339_ford_paper_en.pdf

Garside, D., et al., 2017. How is museum lighting selected? An insight into current practice in UK museums. *Journal of the Institute of Conservation*, 40, 1, 3-14.

Romich, H., et al, 2004. LightCheckR: A new tool in preventive conservation. *V&A Conservation Journal*, Summer 2004, 47, 17-18. http://www.vam.ac.uk/__data/assets/pdf_file/0003/177204/15743_file.pdf

Schaeffer, T. T., 2001. Effects of light on materials in collections: data on photoflash and related sources. Los Angeles: Getty Conservation Institute.

- LIVE CLASS B13 – THURSDAY NOVEMBER 16th 9:00-11:50 BST

Light lecture (COG)

7.1 Damage due to Visible and Ultraviolet Light (COG)

We will look at the effects of ultra-violet and visible light, at ways of measuring light intensity, and at some of the ways in which light damage can be limited.

Light monitoring activity (COG)

Week 8 Pollution

**VIDEOS TO WATCH****8.1 Pollution (COG)**

Air-borne pollutants, whether particulate or gaseous, can have very serious effects on museum collections. Pollutants may come from outside the museum (e.g. SO₂ and NO_x from combustion processes), from the showcase materials (e.g. CH₃COOH and HCHO from wood or manufactured boards), or even from the objects themselves (e.g. H₂S from wool).

N.B. This lecture is in five parts – be sure to watch them all!

**ESSENTIAL READING**

Black, J. L., MacLeod, I. D. and Smith, B. W., 2017. Theoretical effects of industrial emissions on colour change at rock art sites on Burrup Peninsula, Western Australia. *Journal of archaeological science: reports* 12, 457-462.

Kaczkowski, R., A., Makos, K., A., Hawks, C., & Hunt, M. 2017 Investigation of Residual Contamination Inside Storage Cabinets: Collection Care Benefits from an Industrial Hygiene Study, *Journal of the American Institute for Conservation*, 56, 2, 142-160.

Heine, H. and Jeberien, A., 2018. Oddy Test Reloaded: Standardized Test Equipment and Evaluation Methods for Accelerated Corrosion Testing. In *Studies in Conservation*, 63, 1, 362-365.

Stephens, C. H., Buscarino, I. and Breitung, E., 2018. Updating the Oddy Test: Comparison with Volatiles Identified Using Chromatographic Techniques. In *Studies in Conservation*, 63, 1, 425-427.

Thickett, D., 2018. Frontiers of preventive conservation. In *Studies in Conservation*, 63, 1, 262-267.

- RECOMMENDED READING

Abu-Allaban, M. and El-Khalili, M., M.,M. 2014. Antiquity impact of air pollution at Gadara, Jordan. *Mediterranean Archaeology & Archaeometry*, 14, 1, 191-199.

Ashley-Smith, J., Burmester, A. and Eibl, M. (Eds). 2013. *Climate for Collections: Standards and Uncertainties 2013. Postprints of the Munich Climate Conference 7 to 9 November 2012*. Munich: Doerner Institut. http://www.doernerinstitut.de/downloads/Climate_for_Collections.pdf

Blades, N., Oreszczyn, T., Bordass, B. and Cassar, M. 2000. *Guidelines on pollution control in museum buildings*. London: Museums Association. (See also updated version at <http://eprints.ucl.ac.uk/2443/1/2443.pdf>)

Hatchfield P. 2002. *Pollutants in the museum environment – practical strategies for problem solving in design, exhibition and storage*. London: Archetype.

Nord, A. G., Tronner, K., Mattsson, E., Borg, G. C., & Ullén, I. 2005. Environmental threats to buried archaeological remains. *Ambio*, 34, 3, 256-62.

Schieweck, A. 2020. Adsorbent media for the sustainable removal of organic air pollutants from museum display cases. *Heritage Science* 8, 12.

Shane G. DuBay S., G., and Fuldner, C., C. 2017. Bird specimens track 135 years of soot pollution. *Proceedings of the National Academy of Sciences*, 114, 43, 11321-11326.

Thomson, G. 1994. *The Museum Environment*. London: Butterworths. 130-162.

Wilson, H., 2015. Managing dust. *Icon News*, May 2015, Issue 58, London: The Institute of Conservation, 13-15 https://icon.org.uk/system/files/icon_news_58_may_2015.pdf

 LIVE CLASS B13 – THURSDAY NOVEMBER 23rd 9:00-11:50 BST

09:00-09:30 Pollution lecture (JS)

8.2 Introduction to Oddy testing

09:45-11:50 Pollution discussions and activities (DS, TG), Conservation lab (615)

Week 9 Integrated Pest Management (IPM)
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 VIDEOS TO WATCH – none this week!

 ESSENTIAL READING

Chiwara, D. 2018. Sustainable Pest Management Through Preventive Conservation: Case Studies in the Natural History Museum of Zimbabwe and the Zimbabwe Military Museum. *Studies in Conservation*, 63, 1, 335-37.

Collections Trust and Birmingham Museums, 2019. *What's Eating Your Collection?*
<http://www.whatseatingyourcollection.com/>

Pinniger, David. 2010. Saving Our Heritage – Pest Management in Museums and Historic Houses. *Outlooks on Pest Management* 21.5, 239-41.

Ryder, S. and Mendez, A., 2019. Using Risk Zones in Museums as Part of an IPM Programme: Does it Work? *Studies in Conservation*, 64, 4, 203-207.

Xavier-Rowe, A., Lankester, P., Lauder, D. and Pinniger, D., 2018. Operation Clothes Moth: Where Preventive Conservation and Public Engagement Meet. *Studies in Conservation*, 63, 1, 445-450.

RECOMMENDED READING

Daniel, V. (Ed), 2003. Papers from the 5th International Conference on Biodeterioration of Cultural Property, Sydney, 2001. *Bulletin of the Australian Institute for the Conservation of Cultural Material* 28.
<https://www.tandfonline.com/toc/ybac20/28/1?nav=tocList>

Florian, M-L., 1997. *Heritage Eaters: insects and fungi in heritage collections*. London: James & James.

Kingsley H., et al, 2001. *2001 a Pest Odyssey: Integrated pest management for collections: proceedings of a joint conference of English Heritage, the Science Museum and the National Preservation Office*. London: James & James.

Lauder, G., and Pinniger, D. 2006. Updated 2015. English Heritage Guideline for Insect Pest management in English heritage Historic Properties.
<https://www.english-heritage.org.uk/siteassets/home/learn/conservation/collections-advice--guidance/eh-guidelines-insect-pest-management.pdf>

Pinniger, D., 2008. *Pest management: a practical guide*. Cambridge: Collections Trust.

Pinniger, D., and Winsor, P. 1998. *Integrated Pest Management: Practical, Safe and Cost-effective Advice on the Prevention and Control of Pests in Museums*. London: Museums & Galleries Commission.

Querner, P., Oberthaler, E. and Strolz, M., 2019. Biological Pest Control of a Biscuit Beetle (*Stegobium paniceum*) Infestation in an Old Masters Paintings Storage Area. *Studies in Conservation*, 64, 7, 373-380.

Selwitz, C. and Maekawa, S., 1998. *Inert gases in the control of museum insect pests*. Los Angeles: Getty Conservation Institute.

 LIVE CLASS OBLL – THURSDAY NOVEMBER 30TH 9:30-11:50 BST

IPM lectures (GM, EK)

9.1 Integrated Pest Management: Introduction (GM)

9.2 Integrated Pest Management: Pests (EK)

9.3 Integrated Pest Management: Treatment (GM)

Insects can devastate museum collections alarmingly quickly. These lectures will give an overview of common pests, the damage that can be caused, and of strategies for insect control.

IPM activity (GM & EK)

Week 10 Disaster Planning

VIDEOS TO WATCH

10.1 Destroyed but Not Lost: How to Overcome an Earthquake? (MQC)

A case study example focusing on sacred and secular community buildings in the aftermath of a serious earthquake affecting southern Mexico in 2017.

ESSENTIAL READING

Anon, 2005. Working Knowledge: Emergency Planning. *Museum Practice*, 43-59.

Jigyasu, R. 2015. Challenges and Opportunities for Disaster Risk Management of Cultural Heritage against Floods. *Flood Protection for Historic Sites: Integrating Heritage Conservation into Flood Control Concepts*. (LX). Dresden: ICOMOS Journals of the German National Committee. 22–29.

Mercer, J. et al. 2012. Culture and disaster risk reduction: Lessons and opportunities. *Environmental Hazards*, 11 2, 74–95.

Tandon, A. and Pradhan, M. 2017. Building capacity for post-disaster recovery of museum collections in Nepal. In: Bridgland, J. (Ed). ICOM-CC 18th Triennial Conference Preprints, Copenhagen, 4-8 September 2017. 2017. Paris: International Council of Museums.

UNESCO et al. 2010. Managing Disaster Risks for World Heritage. <http://icorp.icomos.org/wp-content/uploads/2017/10/Managing-Disaster-Risks-for-World-Heritage.pdf> Chapter 1 What is Disaster Risk Management and why is it important?

- RECOMMENDED READING

Dirge, V. and Jones, S. 1999. *Building a disaster plan*. Los Angeles: Getty Conservation Institute.

EASA, 2015. Fires in Historic Buildings. *The Journal of the Ecclesiastical Architects' and Surveyors' Association*, Winter 2015/16. Hampton Court Palace, 8-11.

Tandon, A. 2018. First Aid to Cultural Heritage in Times of Crisis. 1. Handbook. Tandon, A. (Ed). Rome, Italy: ICCROM, Prince Claus Fund for Culture and Development. https://www.iccrom.org/sites/default/files/2018-10/fac_handbook_print_oct-2018_final.pdf

Tandon, A. 2018. First Aid to Cultural Heritage in Times of Crisis. 2. Toolkit. Rome: ICCROM and Amsterdam: Prince Claus Fund for Culture and Development. https://issuu.com/princeclausfund/docs/first_aid_to_heritage_toolkit_2018

Tandon, A. 2017. Post-disaster damage assessment of cultural heritage: Are we prepared? In: Bridgland, J. (Ed). ICOM-CC 18th Triennial Conference Preprints, Copenhagen, 4-8 September 2017. 2017. Paris: International Council of Museums.

UNISDR. 2015. Sendai Framework for Disaster Risk Reduction 2015 - 2030. United Nations Office for Disaster Risk Reduction (UNISDR)
[https://reliefweb.int/sites/reliefweb.int/files/resources/Sendai Framework for Disaster Risk Reduction 2015-2030.pdf](https://reliefweb.int/sites/reliefweb.int/files/resources/Sendai_Framework_for_Disaster_Risk_Reduction_2015-2030.pdf)

 LIVE CLASS B13 – THURSDAY DECEMBER 7TH 9:00-11:50 BST

Disaster management lectures (JS)

10.2 Introduction to Disaster Planning (JS)

10.3 Introduction to Salvage (JS)

These lectures focus on disaster management in the context of museums and historic houses with a focus on fire and flood.

Salvage group activity – what would you do? (MC, JS)

Based on real buildings and damage from the Mexico case study

Week 11 Module Review

 VIDEOS TO WATCH – none this week!

 HIGHLY RECOMMENDED READING

Michalski, S. and Bagan, R. 2016. Beyond the traditional approach to preventive conservation. An interview in the e-newsletter of the Centre de Restauració de Béns Mobles de Catalunya, Winter, 30, 3-7.
[https://www.academia.edu/36843489/2016 Michalski and Bagan Beyond the traditional approach to preventive conservation pdf](https://www.academia.edu/36843489/2016_Michalski_and_Bagan_Beyond_the_traditional_approach_to_preventive_conservation_pdf)

- RECOMMENDED READING

Balocco, C. and Volante, G., 2019. A method for sustainable lighting, preventive conservation, energy design and technology—lighting a historical church converted into a university library. *Sustainability*, 11, 11, 3145.

Lucchi, E., 2018. Review of preventive conservation in museum buildings. *Journal of Cultural Heritage*, 29, 180-193.

Henderson, J. 2018. Managing Uncertainty for Preventive Conservation. *Studies in Conservation*, 63, 1, 108-12.

Lelyveld, M. 2019. Foresight for Cultural Materials Preservation: The Role of Environmental Scanning in Conservation, AICCM Bulletin, 40, 2, 75-87.

Valentina Fichera, G., Albano, M., Fiocco, G., Invernizzi, C., Licchelli, M., Malagodi, M. and Rovetta, T. 2018. Innovative monitoring plan for the preventive conservation of historical musical instruments. *Studies in Conservation*, 63, 1, 351-354.

Video: Interview with Tobit Curteis by Professor Matija Strlic: UCL Institute for Sustainable Heritage, February 2017

<https://www.youtube.com/watch?v=gNGkVfbOd6s>



LIVE CLASS B13 THURSDAY DECEMBER 14TH 9:00-11:50 BST

Module Review (JS)

11.1 Key take-aways

A quick overview of what we have covered stressing the most important points for continued reflection. We will also go over any module evaluation data received at this point.

Watch together video (SM)

11.2 Making Risk Deductions from Evidence of Damage to Collections (SM)

Stefan Michalski presents various case studies illustrating how careful observation can reveal past environmental events and stresses the importance of thinking critically when making predictions and giving advice for future care.

Revision requests (JS)