



OBJECT-BASED TEACHING AND LEARNING FOR A CRITICAL ASSESSMENT OF DIGITAL TECHNOLOGIES IN ARTS AND CULTURAL HERITAGE

M. Hess



- The Arts and Sciences (BASc) degree is UCL's Liberal Arts course. <https://www.ucl.ac.uk/basc>
- The programme consists of 50% core courses and 50% pathway courses.
- Pathway options: Cultures , Health and Environment, Sciences and Engineering, Society
- Interdisciplinarity is the central pillar of the programme. Courses are sourced from departments across UCL to give students a good foundation and choices within their pathways.



Tutors BASc2082

Danny Garside



Teaching assistant / Tutor
Danny Garside is a PhD researcher within the 3DIMPact group at UCL CEGE.

Tonya Nelson



Head of UCL
Museums, UCL Culture

Stuart Robson



Professor for
Photogrammetry and
Laser Scanning,
Head of Department,
UCL Civil, Environmental
and Geomatic
Engineering

Tim Weyrich



Professor in Visual
Computing,
Department of
Computer Science

Technologies in Arts and Cultural Heritage

- The objective of the course is to examine the role technology plays in the development, distribution and preservation of art and material heritage.
- It will offer a historical view of the relationship between technology and art and cultural heritage
- It will challenge students to use this knowledge to investigate the implications of using new technologies in contemporary cultural practice.





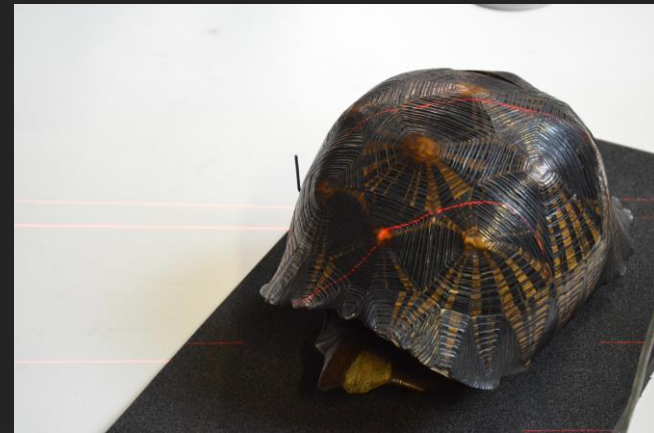
Main topics in BASc2082

1. Image creation, light and colour theory, materials/ appearance, illusion/abstraction
2. 3D imaging technologies in practice, technologies in heritage practice, reproduction techniques
3. Social/economic/political impact of new digital technologies on the production and consumption of arts and heritage



Object based learning (OBL)

- Mix lectures and visit to UCL facilities, where practical applications of technologies can be explored
- UCL Museums and Collections are seen as case studies and as learning spaces to understand the implications of existing and new technologies on heritage practice.



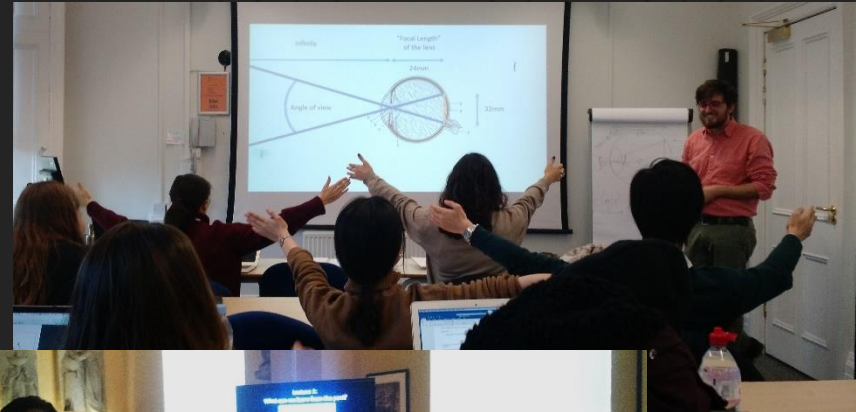


- Classroom and practical
- Electronic classroom
 - Online (Moodle)
 - Introduction to up-to-date hard- und software
 - E- reading list
- Assessment
 - Essays, exams,
 - but also Business Memo, 3D practical coursework, peer marking
 - Student presentations of projects in addition to written coursework to experts





- Research-led teaching
 - Reading and discussion of current press articles, (conference or journal publications)
 - Dialogue with researchers
 - Projects in connection with ongoing research
- Object-based learning
 - On site, Teamwork
- Teaching outside the classroom
 - Visit to UCL facilities , galleries and ongoing project reports





Students' 3D coursework

- Practical activities aimed to implement object-based learning (OBL) by hands-on experience in '3D imaging and 3D printing'.
- Participants were asked to answer a 'real life' heritage question, and to develop a project plan, conduct 3D imaging and then creatively modify 3D print the object to produce a physical output.
- It was stressed that failures were valuable on the learning path to gain practical skills and knowledge.

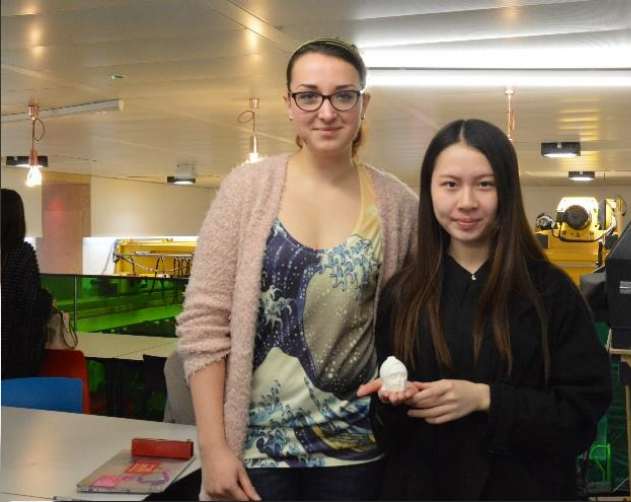
Example



Example



UCL



Perfume Vessel in Shape of a Warrior's Head
*Courtesy of the UCL Institute of Archaeology
Object Access Number UCL872*



**Similar object from the
British Museum**



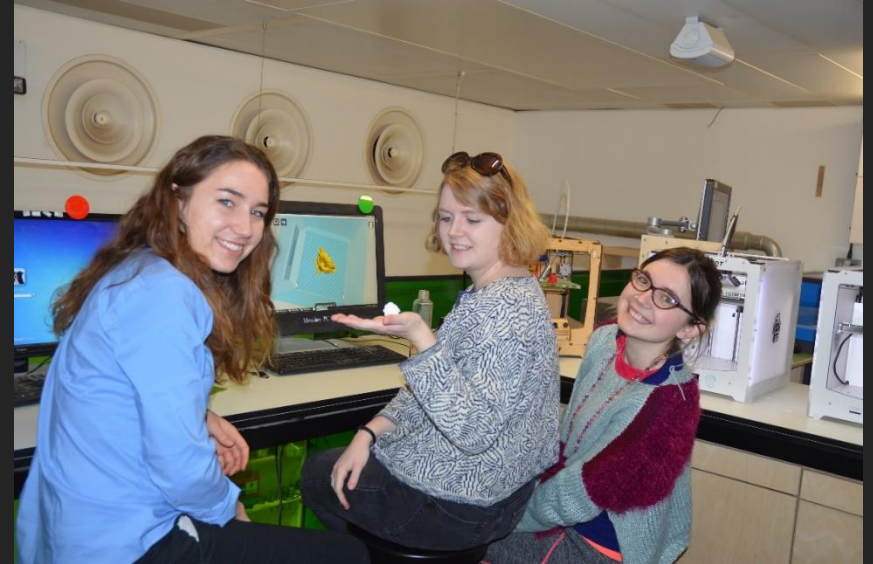
UCL 3DIMPact/ UCL BASc./ UCL CEGE
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3D print of 3Dimage, original and reconstruction
*by Meike Beatrice Loreny, Jiahong Li, Edward Conder
BASc2082: Technology in Arts and Cultural Heritage
(Photograph and Tutor: Dr Mona Hess)*

Example



UCL





UC4108

Astrolabe

Petrie Museum

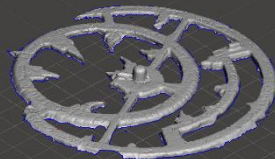
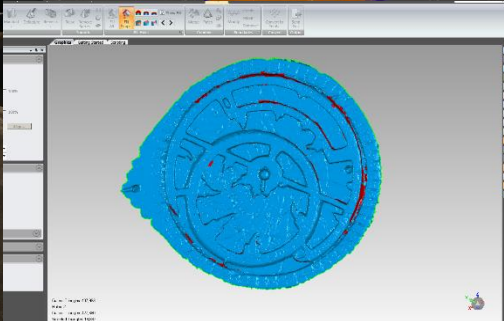
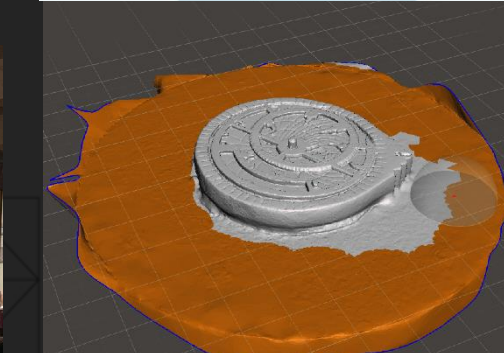
Material: Wood, brass, iron

Dimension: H 175mm, W 156mm, D 19.3mm – 21.5mm

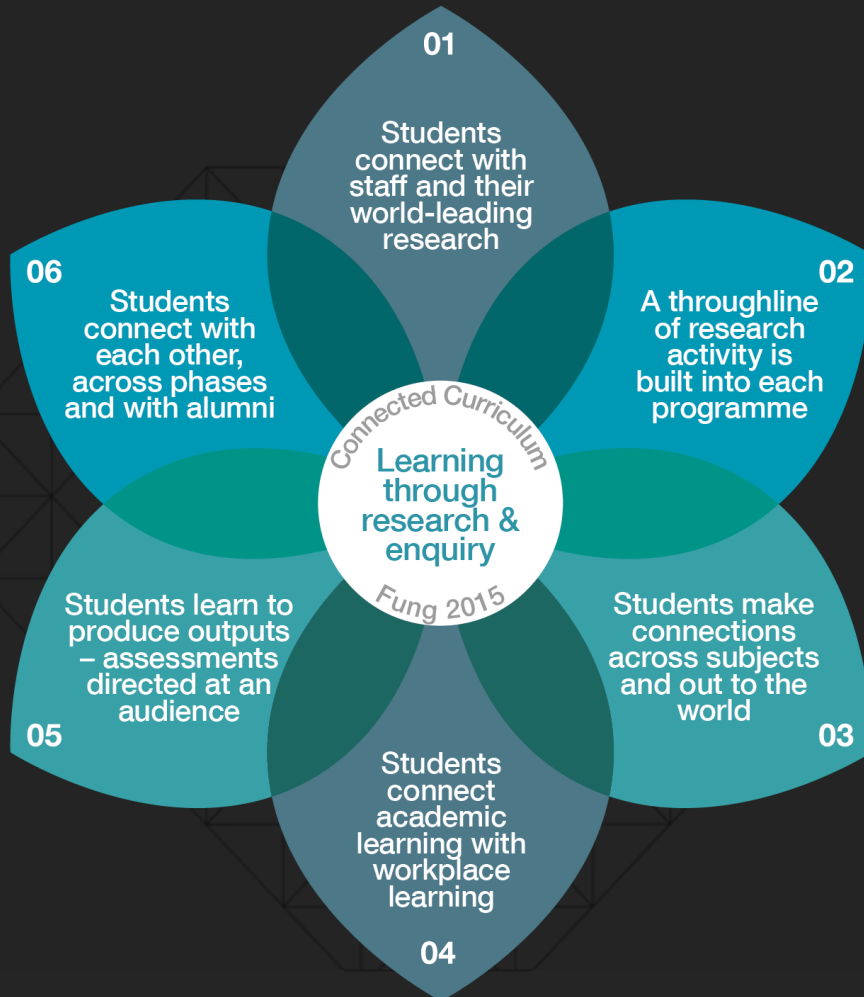
BASc2082 Technology in Arts and Cultural Heritage

Group Members: Jessie Barker, Riki Shirayama, Naomi Bongso

Example



BASc2082 & Connected Curriculum



What have students learned and how does it connect to the CC?

- 1) Personally and socially connected – the process of learning and failure process, work in an inspiring innovative environment & lectures in the museum. Production of different outputs & assessments.
- 2) Research based learning: questions met in ongoing research projects and real events (destruction of cultural heritage) ‘real world questions’, ‘crowdsourcing 3D’
- 3) Conceptually connected: able to judge approaches in digital engagement, computing, surveying, museum studies
- 4) Learning of transferable skills & raise employability (graphical, creative industry, museum engagement) & digital activities, public engagement – tangible outputs



Student evaluations

- *A little more teaching in the technology would be helpful. Super interesting practicals - never thought I would be able to do a 3D print! **But we did! Joy!***
- *Many case examples were presented to illustrate learning points in lectures & I especially enjoyed the practical applications of the course. Very enlightening & the course was structured well in terms of material delivery - methodological. **Groundbreaking!***
- *I feel this would be a very relevant course to History of Arts students and History of Art and Material Studies student who are interested in Museum studies and reproduction technologies. (...) I learnt so much more of what UCL can offer as an institution. To me it was an overall great experience. Very hands-on.*
- *LOVED THE MUSEUM, PLEASE CAN WE HAVE ALL OF THEM IN THE MUSEUMS. (this is not feasible, but I want the museums)*



Learning opportunities in Digital Heritage Technologies in Higher Education



Digitale Denkmaltechn...
Marktanalyse der angebotenen Studiengänge in Europa mit Schwerpunkt Deutschland, UK. Ausgeschlossen
19 views
SHARE EDIT
Untitled layer
Otto-Friedrich-Universität Bamberg
TU Berlin, MSc Denkmalpflege (Geodäsi...
Martin-Luther-University Halle-Wittenbe...

Excluded are programmes for restoration/conservation, computer science, geospatial sciences, geodesy, surveying.
Hess, M. (2017) *Education in Digital Heritage Technologies, a Map*. Available at: <http://bit.ly/2wCzzZM>



Mona Hess @Mona3Dimaging · 2m

Where can you #studyDigitalHeritage in Higher Education? Please contribute to map and send your link bit.ly/2wCzzZM #CIPA0ttawa2017



University of Portsmouth, Historic Buidl...
Landesamt für Digitalisierung, Breitban...
Bayerisches Landesamt für Denkmalpfl...
Thierhaupten
Hochschule Regensburg, Master Histori...



**UNESCO/PERSIST Guidelines
for the selection of digital
heritage for long-term
preservation**



**Digital Campus Bayern
for new infrastructure and new
educational offers, reaction to
the Digital Revolution**



**MSc Digital
Technologies in Heritage
Conservation
(Bamberg, Coburg)**



**Technology Alliance
Oberfranken
for cooperative educational
programmes**

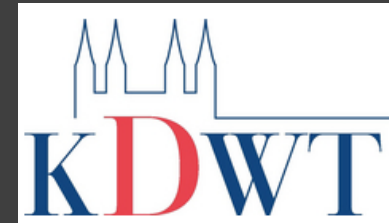


**Centre of competence for
heritage sciences and heritage
technologies
University Bamberg**

MSc Digital Technologies for Heritage Conservation

2-year MSc (120 ECTS) starting from 1.10.2017 – applications still open!

<https://www.uni-bamberg.de/iadk/denkmalwissenschaften/studium/ma-digitale-denkmaltechnologien/>





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Dr Mona Hess,
Cross-disciplinary approach for 3D imaging metrology in cultural heritage and museums
3DIMPact , UCL Civil, Environmental and Geomatic Engineering

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All images in this presentation were used with the consent of the students.