INF1005/6W
Authenticity of the 3D printed Object
Winter 2016

Instructor Information
Instructor: Matt Ratto
Office hours: Thursdays 1215-2pm
Office: Robarts, 7020
Email: matt.ratto@utoronto.ca

Schedule: Wed, 9-12
Location: BL325

Course Description
New forms of representation have typically troubled past modes of evaluation and analysis. The photograph, the moving cinema image, analog audio recordings, newer digital forms – all of these developments have been understood as requiring new practices for establishing value and legitimacy. 3D printing is no exception and raises intriguing questions associated with its hybrid physical/digital form. In this workshop we will explore how 3D printed objects and their makers perform authenticity within various contexts, including the museum, the laboratory, and the hospital.

Working in groups, students will develop a 3D object through scanning or de novo modeling and, as well, define a specific process for establishing and validating its legitimacy. Readings from fields such as archival science, archaeology, and scientific representation will provide a theoretical basis for our explorations. No technical expertise is required to participate but students should expect to engage with simple physical computing and software technologies. Basic tutorials on 3D scanning, modeling, and printing will be provided within the course.

Please note: No previous technical knowledge is required to take this course. Basic tutorials on 3D scanning, modeling, and printing will be provided. Students will be expected to work on projects within and outside of class hours and to develop some skills in these areas. Students with little or no technical background but with an interest in developing basic skills are encouraged to attend.

Learning Objectives
The purpose of the course is to provide students with 1) basic familiarity with issues, cases, and solutions regarding the adoption of the emerging digital technologies of 3D modeling and printing within museum and biomedical contexts; 2) background and experience reflecting on how these technologies might influence current practice; 3) some capacity to evaluate and make decisions the adoption and choices of systems that might be utilized.
Assignments
Students will be graded on 3 assignments; reading overview posts, weekly presentations on group progress (starting week 3), and a final paper detailing the results of course work.

<table>
<thead>
<tr>
<th>Assignment</th>
<th>Due</th>
<th>%</th>
<th>Group grade?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reading Overview posts</td>
<td>Week 3,4,5</td>
<td>30%</td>
<td>NO</td>
</tr>
<tr>
<td>Group Presentations</td>
<td>Weekly</td>
<td>30%</td>
<td>YES</td>
</tr>
<tr>
<td>Final paper</td>
<td>Week 6</td>
<td>50%</td>
<td>NO</td>
</tr>
</tbody>
</table>

Reading Overview posts (Individual grade)
Other than the readings on authenticity due in the first week, there are no set dates for readings. Instead, each student is required to post a 200-500 word reading overview on blackboard forum on week 3, 4, and 5. Any reading related to the course topics may be used - some possibilities are included in the course content section of Blackboard, but students are also encouraged to find additional scholarly works to write about.

Group Presentations (Group grade)
Each group will do two in-class presentations during the term.; one presentation in week 3, 4, or 5 and one final presentation of project results. A signup sheet will be used during class to determine the order of presentations.

Final Paper (Individual grade)
A 10 pg project writeup is due following the final class. See Final paper assignment sheet for more details.

Group Project and dynamics
In the initial classes, students will organize into 3 person groups and that all efforts will be made to schedule meetings and shared work outside of class.

It is expected that students will self-organize into groups that leverage the skills and expertise that each student brings to the course. To assist with this process, we will devote class time during the first week to sharing backgrounds and setting up associations. Problems with group dynamics that emerge during the course will be addressed at the discretion of the instructor.

Required tools
One laptop per group is required to complete the technical components of this course. Please be prepared to install the following programs on them:
For students interested in Biological use of 3D printing:

For students interested in museum reproduction of objects:
Makerbot Desktop - [http://www.makerbot.com/desktop](http://www.makerbot.com/desktop)

For all groups:
[www.meshmixer.com/](http://www.meshmixer.com/)

**Readings**
All readings will be available in electronic form on the web, on the course blackboard site, or in U of T libraries. Please read the readings for the assigned week before the scheduled class.

**Schedule**

**Week 1 - Introduction**
Introduction to course

**Week 2 – Method and Background**
Authenticity
Tech tutorials:
- Image segmentation and clinical use (10-11)
- Museum Scanning and printing (11-12)

**Readings for this week:**
Authenticity in Art (Dutton)
Constructions of Authenticity (McNeil and Mak)
Art in the Age of Mechanical Reproduction (Benjamin)

**Week 3 – Issues**
Group Presentations on Issues

**Week 4 – Cases**
Group Presentations on Cases

**Week 5 – Solutions**
Group Presentations on Solutions

**Week 6 - Final Presentations and course reflection**
Final Presentations
INF1005/6 Group Presentation Signup (to be filled out Week 2)

Week Three – Issues

Groups who sign up to present this week will each do a 10 min presentation on an important issue regarding authenticity and 3D printing in Biomedical or Museum contexts. The issue should be detailed using examples drawn from media or other accounts and linked to course readings. While potential solutions may be posed, it is more important that the presentation provide a nuanced and detailed understanding of the importance of the issue.

Presentation # 1 (Group members and contact email address)

_____________________________________________________________________________________________________

_____________________________________________________________________________________________________________

Presentation # 2 (Group members and contact email address)

_____________________________________________________________________________________________________________

____________________________________________________________________________________

Presentation # 3 (Group members and contact email address)

_____________________________________________________________________________________________________________

_____________________________________________________________________________________________________________
INF1005/6 Group Presentation Signup (to be filled out Week 2)

Week four – Cases

Groups who sign up to present this week will each do a 10 min presentation on an important use case regarding authenticity and 3D printing in Biomedical or Museum contexts. The use case should be detailed using examples drawn from media or other accounts and linked to course readings. While potential solutions may be posed, it is more important that the presentation provide a nuanced and detailed understanding of the particular implementation of 3D printing described in the case.

Presentation # 1 (Group members and contact email address)

_____________________________________________________________________________
_____________________________________________________________________________

Presentation # 2 (Group members and contact email address)

_____________________________________________________________________________
_____________________________________________________________________________

Presentation # 3 (Group members and contact email address)

_____________________________________________________________________________
_____________________________________________________________________________
INF1005/6 Group Presentation Signup (to be filled out Week 2)

Week five - Solutions

Groups who sign up to present this week will each do a 10 min presentation on a solution to one or more of the issues regarding authenticity and 3D printing in Biomedical or Museum contexts. The solution should be detailed using examples drawn from media or other accounts and linked to course readings. The presentation may reference previous student presentations and should provide a nuanced and detailed understanding of how the solution might work.

Presentation # 1 (Group members and contact email address)

_____________________________________________________________________________________________________________

_____________________________________________________________________________________________________________

Presentation # 2 (Group members and contact email address)

_____________________________________________________________________________________________________________

_____________________________________________________________________________________________________________

Presentation # 3 (Group members and contact email address)

_____________________________________________________________________________________________________________

_____________________________________________________________________________________________________________