We will begin our presentation shortly.

**Topic: Teaching & Learning Extended Reality Technology**

Nhora Lucía Serrano, PhD  
Associate Director for Digital Learning & Research, Hamilton College

Ben Salzman  
Instructional Designer, VR/AR Technology Specialist, Hamilton College

Doug Higgins  
Instructional Designer, Hamilton College

**PLEASE NOTE:** All users will be muted during the webinar but should use the chat feature to send questions to Angela Blood during the presentation. We will try to answer as many questions as possible at the end of the presentation.
BUILDING BETTER CURRICULUM
WEBINAR
Down the Rabbit Holes
Teaching & Learning Extended Reality Technologies

Nhora Lucía Serrano, Ph.D
Associate Director for Digital Learning & Research
Email: nserrano@hamilton.edu
Profile Page
Phone: 315-859-4493

Doug Higgins
Instructional Designer
Email: djhiggin@hamilton.edu
Linkedin Page
Phone: 315-859-4493

Ben Salzman
Instructional Designer, VR/AR Technology Specialist
Email: benjaminjordonsalzman@gmail.com
Linkedin Page
Phone: 315-292-3305

Hamilton College
Research & Instructional Design Team

STUDENTS

- Enrollment: 1,850 (53% female, 47% male)
- Diversity: Students hail from 45 states and 46 countries; 32% of the student body consists of U.S. students of color (25.4%) and international citizens (6.6%).
- Residential Life: 100% of students live in 28 residence halls.
Dream a Little Dream: Virtual Reality & Literature

Course Design, Learning Objectives, Assessment, and New Role as Associate Director
Case Studies
Examples of XR Technologies Transforming Teaching and Learning

© 2019 AAMC. May not be reproduced without permission.
Content Generation

Pre-existing applications, Internal & External Development Team Examples


© 2019 AAMC. May not be reproduced without permission.
Equipment Recommendations
Budgeting, Portability and Implementation


© 2019 AAMC. May not be reproduced without permission.
Dream a Little Dream: Virtual Reality & Literature

- Idea & Digital Citizenship
- Course Design
- Assignments & Student Learning Outcomes
- Reflection & Next Steps in Digital & Visual Fluency
Idea & Digital Citizenship ~ 
Virtual Reality Meets Literature

- *The Wonderful Wizard of Oz, Through the Looking-Glass,* Neil Gaiman’s *Sandman,* and *Tron*
- Interdisciplinary Approach: Global & Comparative Selection, Variety of Genres
- Visual Studies & Digital Humanities Methodology
- Continued Collaboration with Research & Instructional Design Team

Creation, Design, and Contribution:
“Digital Citizenship is a concept which helps teachers and technology leaders understand what students should know to use technology appropriately... it is a way to prepare students for a society full of technology.”

Considered still a new emerging field of study and research, Digital Humanities is the intersection of digital technologies and the disciplines of humanities in which students learn to be **producers not just consumers of technology**.

Course Design centered on an interdisciplinary and intermedia approach where students explored the intersection of dreams and realities (virtual, simulated, imagined, hyperreal, etc.) inside the literary text from digital humanities and cross-cultural perspectives.

- One semester in advance planning: rhythm & pacing for assignments & workshops
- Many meetings in advance (e.g. workshops, space, etc.)
- Balance: Literature and Comp Sci students would both be on equal playing field (e.g. Inclusive Teaching Methodologies)
- Devising Projects for collaborative work to mirror course collaboration
- Trying out the Technology
Assignments & Student Learning Objectives: Digital & Visual Fluency

- Better understand and critique images that saturate our waking, daily life.
- Ability to interpret, recognize, appreciate and understand information passed through visual objects, especially those made by digital 'hand.'
- Use viewing skills and strategies to interpret visual media.
- Engagement with a wide range of print and non-print materials in the library, including Special Collections and Research & Instructional Design, that facilitate this engagement.
- Help students to think through, think about, and think with images (with)in books, digital pictures, and other possible visual ephemera.
Reflection & Next Steps in Digital & Visual Fluency

- **Students Exceeded our Expectations: Group Roles worked**
  - More built-in time for outside meetings and consultation to facilitate further Engagement

- **Showcase on Last Day**
  - More Workshops on how to “Screen grab” for StoryMaps and “Save/Record their project to take Home”

- **Article in Chronicle of Higher Education**
  - Repository of Student Feedback and Quotes outside of Faculty Evaluations

- **Let the Course Breathe, Team Reflection, and Design New Ones**
  - Take out Movie Reviews and replace for Close Passage Analysis; “Suffrage and Comics” and “MakerSpaces and Literature”

- **In my new role as Associate Director for Digital Learning & Research, help faculty to design and create new opportunities for students at large**
Case Studies
Examples of XR Technologies Transforming Teaching and Learning

© 2019 AAMC. May not be reproduced without permission.
HP/Educause Research Project
Best Practices for 3D Technologies in the Classroom

Virtual Human Anatomy

Geoscience mineral scanning project

Empathy Walk

VR Orchestra Conducting

Image Sources: Hamilton College, "RID Webpage". https://rid.hamilton.edu/campus-of-the-future/

© 2019 AAMC. May not be reproduced without permission.
Educause Report: Learning in Three Dimensions

Educause releases 2018 report
Read the EDUCAUSE/HP Campus of the Future Project

Image Sources: Hamilton College, "RID Webpage", https://rid.hamilton.edu/campus-of-the-future/
Teaching Human Anatomy with VR

Last year, Nhura Lucia Serrano added a twist to her literature course at Hamilton College. She asked her students to design worlds in virtual reality, inspired by novels such as Alice in Wonderland and The Wizard of Oz.

A colleague in the biology department, Natalie Nannas, is helping develop virtual DNA, one of the trickiest structures for undergraduates to comprehend, particularly in two dimensions.

And before the end of this semester, students in Heather Buchman’s conducting course practiced in front of a virtual orchestra before leading a live ensemble as part of their final grade.
Orchestra Conducting in Virtual Reality
Fundamental VR: 360 Degree Virtual Reality Brain Surgery

Source: Brain Book [https://www.youtube.com/watch?v=1H9qNaP0W9o&feature=emb_title](https://www.youtube.com/watch?v=1H9qNaP0W9o&feature=emb_title)
Research: How Virtual Reality Can Help Train Surgeons

by Gideon Blumstein
October 14, 2019

Neurosurgical Simulation and Virtual Reality Center

Expanding Precision Virtual Reality as a patient education and surgical planning tool.

Stanford VHIL

Content Generation

**Pre-existing content**
- Free/paid experiences available online
  [https://www.sharecare.com/pages/vr](https://www.sharecare.com/pages/vr)

**Internal development team**
- Faculty, staff, and/or students
  [https://rid.hamilton.edu/campus-of-the-future/](https://rid.hamilton.edu/campus-of-the-future/)

**External development team**
- Hire an outside consultant/company
Equipment Recommendations

Budgeting, Portability and Implementation

Oculus Go

Oculus Go

All-In-One VR

Experience VR that’s portable and easy to use.

$199 USD$ | 32 GB
Buy Now

$249 USD$ | 64 GB
Buy Now
Oculus Rift

<table>
<thead>
<tr>
<th>Model</th>
<th>Storage</th>
<th>Price (USD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quest</td>
<td>64 GB</td>
<td>$399</td>
</tr>
<tr>
<td>Rift</td>
<td>128 GB</td>
<td>$499</td>
</tr>
</tbody>
</table>

**Easy Setup**
Set up effortlessly whether you're at home or someplace new.

**Oculus Insight Tracking**
Built-in sensors translate your movements into VR and provide room-scale tracking.

**Oculus Touch Controllers**
Your hands and gestures appear in VR with intuitive, realistic precision.

Image Sources: Oculus Website [https://www.oculus.com/](https://www.oculus.com/)
Oculus Rift S

PC-Powered VR Gaming

Step into our best VR games.

- **Improved Optics**
  - Improved optics deliver bright, vivid colors and reduced "screen-door" effect.

- **Ergonomic Design**
  - The halo headband is redesigned with speed and comfort in mind.

- **Oculus Touch Controllers**
  - Your slashes, throws and grabs appear in VR with intuitive, realistic precision.

Image Sources: Oculus Website [https://www.oculus.com/](https://www.oculus.com/)

© 2019 AAMC. May not be reproduced without permission.
360 Video Equipment

Insta360 GO
The twenty-gram steady cam.

Augmented Reality Equipment

The Broadside in AR: Trigger Images

Image Sources: Hamilton College, "RID Webpage", https://rid.hamilton.edu/campus-of-the-future/
Portability and Flexibility

Image Sources
Portability and Flexibility


Amazon link to [Yaheetech 32 to 70 Inch Mobile TV Cart](https://www.amazon.com)
Contact Us

Nhora Lucía Serrano, Ph.D
Associate Director for Digital Learning & Research

Email: nserrano@hamilton.edu
Profile Page
Phone: 315-859-4493

Ben Salzman
Instructional Designer, VR/AR Technology Specialist

Email: benjaminjordonsalzman@gmail.com
Linkedin Page
Phone: 315-292-3305

Doug Higgins
Instructional Designer

Email: djhiggin@hamilton.edu
Linkedin Page
Phone: 315-859-4493

Hamilton College
Research & Instructional Design Team

Image Sources: Hamilton College, "RID Webpage", https://rid.hamilton.edu/campus-of-the-future/
Thank you and we will see you next month!

Please register for next month’s
Building Better Curriculum Webinar Series on
Wednesday, January 8, 2020 at 1:00 pm EST.

**Documenting Clinical Experience**

Katie Maietta, Assistant Director and Administrator
University of Pittsburgh School of Medicine

We will post December’s series on AAMC’s website here:

[www.aamc.org/cir/webinars](http://www.aamc.org/cir/webinars)