Florida’s Developmental Education MOOC: Supporting College Readiness in Reading, Writing, and Math

David Shulman, Ph.D.
Campus President, Broward College Online

College Readiness through Game-Based Learning

Florida’s Statewide Developmental Education MOOC
Florida’s Developmental Education MOOC: Supporting College Readiness in Reading, Writing, and Math

Agenda

1. Broward College’s Current MOOC
   College Readiness: Reading, Writing, and Math

2. The State of Florida’s MOOC Grant
   Developmental Education MOOC
Florida’s Developmental Education MOOC: 
Supporting College Readiness in Reading, Writing, and Math

What is a MOOC?

A Massive Open Online Course is....

- Typically credit-less.....certificate and badge options are sometimes possible.
- Typically self-paced with minimal instructor interaction.
- Some social and collaborative interfaces may exist.
- Often very large class size.....*very large*.

Sample Coursera Certificate 
Using Signature Track to 
Verify Student Authenticity

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Florida’s Global Campus
Florida’s Developmental Education MOOC: Supporting College Readiness in Reading, Writing, and Math

What is a MOOC?

MOOC Milestones 2001 - 2002

- MIT OpenCourseWare (OCW) begins open access to course content
- Initially 50 courses, but now over 2,150

An MIT education for $2,000?
Watch Scott Young’s TED Talk at...

MIT’s Curriculum

- 8.01 – Physics I
- 8.02 – Physics II: Electromagnetism
- 18.01 – Calculus
- 18.02 – Multivariate Calculus
- 5.111 – Principles of Chemical Science
- 7.014 – Introduction to Biology
- 6.01 – Introduction to EE and CS I
- 6.02 – Introduction to EE and CS II
- 6.04J – Mathematics for Computer Science
- 6.002 – Circuits and Electronics
- 6.003 – Signals and Systems
- 6.004 – Computation Structures
- 6.006 – Introduction to Algorithms
- 6.041 – Probabilistic Systems Analysis
- 6.034 – Artificial Intelligence
- 6.046J – Design and Analysis of Algorithms
- 18.03 – Differential Equations
- 18.06 – Linear Algebra
- 24.241 – Logic I
- 14.01 – Microeconomics
- 14.02 – Macroeconomics
- 24.244 – Modal Logic
- 14.20 – Industrial Organization
- 24.244 – Decisions, Games and Choice
- 14.45I – Economics of Education
- 14.23 – Government Regulation of Industry
- 6.033 – Computer Systems Engineering
- 6.013 – Electromagnetics and Applications
- 6.005 – Elements of Software Construction
- 6.011 – Control, Communication and Signals
- 6.045 – Principles of Digital Communication
- 6.801 – Machine Vision
- 6.837 – Computer Graphics

An MIT education for $2,000?
Watch Scott Young’s TED Talk at...

ocw.mit.edu
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What is a MOOC?

MOOC Milestones 2011 – 12

• Stanford University launches three MOOCs.

• Coursera founded as a spinoff from Stanford’s experiments in open online learning by...

Daphne Koller
Professor in the Computer Science Department at Stanford University

Andrew Ng
Associate Professor of Computer Science at Stanford University


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What is a MOOC?

MOOC Milestones 2012

- **EdX**
  Harvard University and the Massachusetts Institute of Technology partnership for hosting MOOCs from their institutions for free.

- **Udacity**
  Blossomed from Stanford professor Sebastian Thrun’s artificial-intelligence MOOC.

- **Canvas Network**
  MOOC hosting via the Canvas LMS.
What is a MOOC?

MOOC Milestones 2013

- American Council on Education (ACE) approves five Coursera courses for college credit:
  1. Algebra from the University of California, Irvine
  2. Pre-Calculus, from the University of California, Irvine
  3. Introduction to Genetics and Evolution from Duke University
  5. Calculus: Single Variable from the University of Pennsylvania
What is a MOOC?

A Massive Open Online Course, which for the State project means:

• **Massive**
  Serves all state educational institutions and interested citizens.

• **Open**
  Free enrollment, Open Educational Resources (OERs).

• **Online**
  The Web is the medium for delivery.

• **Course**
  Content is organized with goals and measurable outcomes.
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Broward College’s MOOC – Why did we do it?

• Many students don’t prepare for the PERT and end up in Developmental Education prison.

• With modularized content the MOOC provides reusable learning assets for reading, writing, and math fundamentals.

• This is part of our College’s Developmental Education Implementation Plan...per statute.

• We like being on the bleeding edge....plus our campus is online, so this is a perfect match for our virtual means of teaching and learning.
Florida’s Developmental Education MOOC: Supporting College Readiness in Reading, Writing, and Math

Getting the Word Out

- Open houses
- School District
Florida’s Developmental Education MOOC: 
Supporting College Readiness in Reading, Writing, and Math

Getting the Word Out

• Website

Free College Readiness Course - Reading, Writing, Math

Registration stays open until the last week of the course, based on the times shown below.

Start date: 01/27/2014
End date: 05/31/2014

Registration takes 30 seconds...so ENROLL NOW!

NOTE: The next start date for the 2014 season will be in June, with enrollment starting in mid-May. Feel free to jump into the current course that ends on May 31 if you just can’t wait!

Need to get ready for college reading, writing or math? Perhaps you just need some help with reviewing some math concepts? Whatever the case, Broward College Online has a free, self-paced course you can take at almost any time.

This course provides prospective college students with a primer in college level reading, writing, and mathematics. Whether preparing to take a standardized placement test, or simply wishing to determine and improve readiness to handle college-level work, this course helps you build mastery and confidence.

Work at your own pace across all three subject areas, or to select individual content areas. Pretests will determine any learning deficits, which can then be mastered through self-paced learning modules.

Not forgetting the importance of the human touch, this course is overseen by a trio of reading, writing, and mathematics professors who will be available to assist and encourage students along their journey to college readiness.
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Getting the Word Out

- Social Media
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Getting the Word Out

- Testing Services

![Testing Services Image]

“Which test is appropriate for me?”

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Supporting College Readiness in Reading, Writing, and Math

Getting the Word Out

- Canvas Network MOOC Portal

http://canvasnetwork.com/
Florida’s Developmental Education MOOC: Supporting College Readiness in Reading, Writing, and Math Using Canvas Network

• Why not our LMS?

Hint: Which one of these MOOC enrollment forms would you have time to complete?
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Broward College’s MOOC – Enrollment Data

Session 1 - June 2013
996 enrollments

Session 2 - July-August 2013
1624 enrollments

Session 3 - September-December 2013
2995 enrollments

Session 4 - January-May 2014
2903 enrollments

Session 5 - June-August 2014

Over 8,000 served
Florida’s Developmental Education MOOC: Supporting College Readiness in Reading, Writing, and Math

Broward College’s MOOC – Why did they enroll?

<table>
<thead>
<tr>
<th>Reason</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>To prepare to return to college</td>
<td>34%</td>
</tr>
<tr>
<td>To prepare for first time college entrance</td>
<td>27%</td>
</tr>
<tr>
<td>Enjoy learning about topics of interest</td>
<td>14%</td>
</tr>
<tr>
<td>To gain skills for a new career</td>
<td>11%</td>
</tr>
<tr>
<td>I like learning in the online format</td>
<td>10%</td>
</tr>
<tr>
<td>Curious about MOOCs</td>
<td>3%</td>
</tr>
<tr>
<td>For promotion at work through new skills</td>
<td>1%</td>
</tr>
</tbody>
</table>
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Broward College’s MOOC – Why did they enroll?

Preparation for the PERT

I live in Florida and go to Broward College. I am taking this class to take the PERT test again in Math. I hope this time I can score high so I can just jump to MAT1033 or MAC 1105.

I am from Haiti and I am an EAP student; I am preparing for my PERT in Math and Reading.

I am a sophomore in high school. I am interested in Dual Enrolling with Broward College starting this summer. I believe that this course will help me prepare for the PERT exam.

I'm taking this course to prepare for my PERT and possible MAT0028 class. In 6th grade I was able to do college level algebra. Anyhow, I am a mother of three in Miami and a previous college student who is ready to get it over with w/o any interruptions of life.
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Supporting College Readiness in Reading, Writing, and Math

Broward College’s MOOC – Why did they enroll?

Improving College Readiness Skills

Hi, My name is XXXX, I come from Syria and I live in Pittsburgh. I **want to continue my studying in the U.S. so I’m preparing for that by English courses and online courses.**

I am a former teacher at a Montessori preschool. I recently left my school of 3 years and **need a refresher for starting some college courses** this next session.

I've already graduated from university here in Colombia. **But I'm looking to do a Masters in an English speaking country, and this course could help me with my English and Math skills.**

My name is XXXX. I am 38 years old and I am currently working at an heavy truck dealership in the parts dept. I tool this course as **a refresher course before I enroll in college.**
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Broward College’s MOOC – Why did they enroll?

Other Reasons

Hi I am coming up to speed to help my high school grand children and thought this would be a good way to do it.

I’m retired. I received a AA Degree in 1982 in Business and thought I would take a couple of courses to help keep my mind active and possibly refresh some knowledge long lost forgotten.

I’m employed as the National Manager for Member Services, Training and Quality Assurance for the XXXX Club in South Africa. I registered for a refresher for myself and my staff.

I see that I am the night owl of the group. I am an LPN and I am in the Bridge Program at Broward College. I have been out of school for many years and want to brush up on my basic skills.
## Broward College’s MOOC – Demographics

<table>
<thead>
<tr>
<th>Region</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>North America</td>
<td>74%</td>
</tr>
<tr>
<td>Western Europe</td>
<td>7%</td>
</tr>
<tr>
<td>Asia</td>
<td>6%</td>
</tr>
<tr>
<td>South America</td>
<td>5%</td>
</tr>
<tr>
<td>Caribbean</td>
<td>3%</td>
</tr>
<tr>
<td>Central America</td>
<td>2%</td>
</tr>
<tr>
<td>Middle East</td>
<td>1%</td>
</tr>
<tr>
<td>Eastern Europe</td>
<td>1%</td>
</tr>
<tr>
<td>Australia &amp; the South Pacific</td>
<td>1%</td>
</tr>
</tbody>
</table>
Florida’s Developmental Education MOOC: 
Supporting College Readiness in Reading, Writing, and Math

Broward College’s MOOC – A local look

- Broward County Residents: 41%
- Broward County School Students: 10%
- Broward PERT Takers using the MOOC: 600 per term
- Online Students Preparing for Courses: 9%
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Broward College’s Current MOOC – It takes a team!

Project Leaders
Joanne Bashford
David Shulman
Yaping Gao

Instructional Design Team
Sunem Beaton
Teri Goodchild
Sharon Rifkin

Instructional Team
Reading: Charlene Koonin
Writing: David Hennessy
Math: Abe Biggs

Reading Team
Jennifer Solley
Stacey Stember

Librarian
Simone Williams

Writing Team
Ana Cowo
James Martin

Math Team
Jody Harris
Pascal Roubides
Broward College’s Current MOOC—Design

College Foundations: Reading, Writing, and Math

Broward College™, through its Virtual Campus, is pleased to offer a no-cost open course to help with student preparation for post-secondary education readiness exams. The purpose of any college-level readiness exam is accurate course placement in college, and it is aligned with the post-secondary readiness competencies identified by faculty as necessary for success in entry-level college credit coursework. Readiness assessments include placement tests in reading, writing, and mathematics.

Course Description
This is a short self-directed and self-study course for students preparing to take mandatory post-secondary education readiness exams in order to enter an institution of higher learning. Learn more about course requirements and expectations in the Course Syllabus.
Florida’s Developmental Education MOOC: Supporting College Readiness in Reading, Writing, and Math

Broward College’s Current MOOC – Design

Get Started
To begin the course, watch this video and then begin coursework by taking a pre-test in the module of your choice. You may also visit the Canvas Student Orientation module. Modules can be found by clicking Modules in the course menu on the left.

The reading portion of this course covers identifying, distinguishing, analyzing and inferring information from written English.

The writing portion of this course covers proper grammar, syntax and appropriate usage and mechanics of writing in English.

The math portion of this course covers basic number theory, polynomial expressions, operations and equations, and graphing.

(Click the image links above to enter the corresponding module of this course)

Information on the development team can be found on the Development Team page.
Find course objectives, pre-requisites, and an outline of expectations and assignments in the Course Syllabus.

This course content is offered under a CC Attribution Non-Commercial Share Alike 4.0 license. Content in this course can be considered under this license unless otherwise noted.
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Broward College’s Current MOOC – Design

Determine Whether an Ordered Pair is a Solution to a Linear System

Example: Determine whether (-3, -4) is a solution of the system.

Solution: Let’s substitute the given ordered pair into each equation and see if we get a true statement for each.

-3 + (-4) = -7  ✔️

-3(-4) = -12  ✔️

-4(-3) = 12  ✔️

-4(-3) = -12  ❌

Since the ordered pair (-3, -4) made both equations true, it is a solution to our system of equations.

Kinesthetic  Visual  Auditory  Read & Write

Solving Systems by Graphing

Steps for Solving Systems by Graphing

- Graph the first equation in a coordinate plane using any method.
- Graph the second equation in the same coordinate plane using any method.
- Find the point of intersection, if it exists.

Example 1:

Solve the following system of equations by graphing:

\[ \begin{align*}
2x + y &= 6 \\
2x - y &= 0
\end{align*} \]

You can view the solution of this example in the following video (809)
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Supporting College Readiness in Reading, Writing, and Math

Broward College’s Current MOOC - Attributes

Unique MOOC Attributes

- The learner determines the pathway to remediation and mastery.
- Competency-based, self-paced.
- Teaching becomes facilitating.
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What Does the State of Florida Want?

- A Developmental Education MOOC for students studying for the **PERT**.
- A Developmental Education MOOC to support **any Floridian pursuing a credential**.
- A Developmental Education MOOC that can be **used as a blended learning resource** to support and enhance any other academic endeavor.
- A MOOC solution covering **Florida’s Developmental Educational competencies**.
Florida’s Developmental Education MOOC: Supporting College Readiness in Reading, Writing, and Math

Broward College Deliverables

• An immersive learning experience for Floridians focused on developmental education competencies and college readiness.

• Demographic data, learning analytics, student and faculty feedback for the purpose of continual improvement in course design, delivery, and student learning.

• A competency-based MOOC to support customized learning experiences for high-school and other students preparing to enter college.

• A MOOC providing any student with discrete remediation while engaged in non-credit or credit bearing courses.

• Broward College will also provide faculty from each content areas to facilitate and support student learning at any point during their MOOC experience.

Games are the most elevated form of investigation – Albert Einstein
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Broward College Deliverables

- Provisioning a MOOC integrating game-based learning for a uniquely engaging experience, particularly for millennial, digital natives.
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Broward College Deliverables

Game-based learning is the differentiator.

- Multi-modal...
  - Textual
  - Graphical
  - Video/Audio
  - Interactive
  - Mobile ready
  - Gaming
  - Faculty facilitated
Florida’s Developmental Education MOOC: Supporting College Readiness in Reading, Writing, and Math

Broward College Deliverables

Provisioning a MOOC that can be delivered to all State stakeholders.

a) Within a third party **learning management system**.

b) As **IMS compliant packages** in the **Orange Grove**.*

c) As unique assets in the **Orange Grove**.

d) As a **single point of origin** reflecting the latest iteration.

*The Orange Grove** is Florida’s digital repository for instructional resources. The repository provides an environment for educators to search for, use, remix, share, and contribute educational resources.

Online @ [http://florida.theorangegrove.org](http://florida.theorangegrove.org)
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Broward College Deliverables

Reusable content from our current MOOC is available for full or partial adoption by faculty through our LMS.
Florida’s Developmental Education MOOC: Supporting College Readiness in Reading, Writing, and Math

Broward College Deliverables

Open Educational Resources for a zero cost….zilch….nader.

No Cost Textbook Online Classes for Summer 20143

Why pay the high cost of textbooks?

The following classes are AVAILABLE FOR REGISTRATION NOW and have no textbook cost requirements. If you are looking for great courses at the most affordable price, consider enrolling in any of the following sections.

Bookmark this page. There will be more no textbook cost classes coming over the next couple of weeks.

<table>
<thead>
<tr>
<th>Course</th>
<th>Reference #</th>
</tr>
</thead>
<tbody>
<tr>
<td>AML2010</td>
<td>483560</td>
</tr>
<tr>
<td>AML2010</td>
<td>483561</td>
</tr>
<tr>
<td>AML2010</td>
<td>483562</td>
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<tr>
<td>AML2020</td>
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<td>AML2020</td>
<td>483564</td>
</tr>
<tr>
<td>ARH2000</td>
<td>483818</td>
</tr>
<tr>
<td>ARH2000</td>
<td>483819</td>
</tr>
</tbody>
</table>

• Broward College students save over $250,000 each term through OER courses.
• These now comprise 30% of our online program.
• Over $2,000 savings for A.A. and A.S. students.
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Broward College Deliverables

Creative Commons @ [http://creativecommons.org/](http://creativecommons.org/)

• Free and open use of content.

• Attribution :: Non-Commercial :: Share Alike
  - remix
  - tweak
  - build upon the work
  - credit the creator
  - license new creations under identical license
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**Timeline**

- **PHASE I**
  January 2014 – February 2014
  Analysis and Design

- **PHASE II**
  March 2014 – August 2014
  Development

- **PHASE III**
  September 2014 → Ongoing
  Implementation & Evaluation
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Assessment

- Are targeted students enrolling?
- Does the MOOC experience increase placement test results?
- Do success rates in development and gateway courses improve when the MOOC is used as a readiness tool?
- Are students satisfied with the MOOC learning experience?
- Are students who used the MOOC more college ready?
- Do educators utilizing the MOOC or related content report greater student success?
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Live Demonstration

Lessons w/Embedded Games

• Reading
  Vocabulary

• Writing
  Parts of Speech

• Math
  Order of Operations

• Mobile Ready

Standalone Games

Reading Race Game

Writing Wheel Spin Game

Simplify Equations

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www.broward.edu

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Florida’s Global Campus
Florida’s Developmental Education MOOC: Supporting College Readiness in Reading, Writing, and Math

Thank you. Questions?

David Shulman, Ph.D., Campus President
Broward College Online – Florida’s Global Campus
225 E. Las Olas Boulevard
Ft. Lauderdale, FL 33301

Phone: 954-201-7900

E-mail: dshulman@broward.edu