Request for Proposal

Scaling Adoption of Inspark Courseware

Inspark Teaching Network

Issue Date: 5th May 2016
Due Date: 30th May 2016

Summary

The Inspark Teaching Network is requesting proposals for institutions that wish to receive the Scaling Adoption of Inspark Courseware grant. The program is designed to measurably improve student outcomes, with a focus on engagement, learner success, and completion, by accelerating and scaling adoption of next-generation science courses and technology. The target demographic is low-income, first-generation, minority students (too many are failing high enrollment general education courses, particularly in STEM), with a focus on providing accessible and affordable courseware ($25 per student, no cost to the institution). Up to 5 institutions will be granted $25,000 to $50,000, including in-kind support and pilots at no cost to the student for the first semester. Courses available include: gen-ed science, non-majors biology, chemistry, physics, and astronomy. Institutions currently participating in the Inspark Teaching Network as well as those new to the project are encouraged to apply.

Grant: Up to 5 grants between $25,000 to $50,000
Eligibility criteria:
● Courseware adoption in science courses such as introductory non-majors biology & chemistry
● Accredited two-year or four-year postsecondary institution, including state systems
● 15,000 or more undergraduate headcount preferred
Who should apply: Administrators, Provosts, Deans, Department Chairs

Background

Inspark has developed a series of Smart Courses for introductory science. The next-generation courseware is a personalized learning journey, customizable for the instructor, and uses curriculum centered on compelling scientific questions, such as, Are alone in the universe?, in order to engage and motivate students. Learning objectives are threaded through real-world science problems in an effort to teach science as exploration of the unknown, not just mastery of what is known.

The Inspark Teaching Network is a community of educators, creating and sharing personalized learning experiences and supporting Smart Course development. The project is dedicated to postsecondary success of low-income, first-generation, minority students in entry-level science. It is a collaboration between the newly formed Center for Education Through eXploration (ETX) at Arizona State University, Smart Sparrow (a recent Bill & Melinda Gates Foundation grantee for the project), and Achieving the Dream, empowering instructors with the latest digital learning technologies. The network is moving towards becoming its own not-for-profit entity in line with other Teaching Networks such as the BEST Network.
Grant Program Overview

Purpose
The purpose of the grant is to support institutions already piloting or interested in adopting Inspark courseware towards achieving scale and effective use of high-quality learning experiences. The Inspark Teaching Network is leading the effort to transform and measurably improve learner success and STEM completion. The curriculum innovation proposed by Inspark, with its unique personalized learning journey, along with adaptive courseware, has the potential, particularly in a blended setting, to achieve greater learner success in these critical low-success courses. This program aims to ensure access and affordability to students in two-year and four-year institutions. Faculty are provided with support and tools to customize the courseware in order to fit their curriculum and teaching.

Design
Inspark will choose up to 5 institutions to receive a Scaling Adoption of Inspark Courseware grant. Selected institutions will commit to an accelerated adoption of Inspark curriculum and courseware to achieve enrollment milestones (as detailed below in the Selection Criteria) within the program term extending to the end of calendar year 2017. At the conclusion of the program, additional grant funding may be provided. The standard pricing of $25 per student will not change beyond the program timeframe, and there will never be a cost to the institution to enable the use of the courseware.

Inspark will manage the proposal submission and review process, institution selection, award notification, and all program administration required by the grant. Participating instructors can choose to pilot a portion of the courseware (one lesson or module) during the evaluation, before moving to adopt the majority of the course material in either a blended or fully-online setting.

Grant Spending
Selected institutions will receive grant funding between $25,000 and $50,000. Whilst not prescriptive, grant funding may be used to support:

- a campus-based program manager,
- faculty development to promote program participation, engagement, and instructional skill enhancement,
- faculty release time, or
- stipend for data collection.

In-kind support will be provided by the Inspark Teaching Network as:
- instructor training and workshops, and
- first semester pilot at no cost to the students.

Impact
The Inspark Teaching Network has the ambitious goal of 150,000 student enrollments by the end of 2017. The courseware is currently being piloted in over 40 institutions across the country, mostly by non-majors students. Whilst the courses can be adapted for majors, the focus on courses for non-majors has high impact because:

- A larger proportion of students take these courses.
- STEM qualifications improve social mobility and future earnings.

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1 Based on our research, the Intro to Biology course materials market is comprised of ~60% non-majors.
2 See recent Chronicle of Higher Ed article.
● Traditional science and math courses have high failure rates for these students, overloading them with facts and formulas they may never use.3
● These courses provide 21st century skills such as critical thinking and scientific reasoning, in what might be the only science course they take.
● These are the students that will become the decision-makers of the future.4

This program builds on the recent Inspark Evaluation Cohort to which our Inspark Research & Evaluation team from Arizona State University, University of California, Berkeley, Carnegie Mellon University, and University of Texas at Arlington, has been providing ongoing evaluations. Evaluations of impact, in terms of learner success, extend beyond course grade and completion rates by measuring improvements in scientific reasoning, critical thinking, and persistence (see the Inspark Learner Success Model in the Data Use Agreement).

Grant Offering

Selected institutions will receive the following during the grant period:

For the institution:
● Grant funding to support the launch, implementation, and scaled adoption of personalized courseware
● No cost to students for the first semester pilot and evaluation, with the option for the institution to exit the program (funding will be contingent on continued scaling beyond the evaluation)
● No cost to the institution, ever
● Learner Success Evaluations, conducted by independent evaluator SRI Education and Inspark Research & Evaluation team, measuring outcomes such as scientific reasoning and critical thinking in addition to course grade and completion rates
● Access to the Smart Sparrow Adaptive eLearning Platform to enable the use and customization of the courseware

For faculty:
● Half-day webinar/workshop, for technology training and curriculum exploration, as part of the Inspark Professional Development Program
● Portion of grant funds eligible to compensate faculty for release time
● Instructional design support for courseware customization
● Dedicated faculty support (setting up courseware and during teaching)
● Dedicated IT (LMS integration) and technical support
● Learning community for faculty implementing the courseware

For students:
● Subsidized cost of $25 per student for the courseware (following the first semester pilot) with the option for instructors to replace a more expensive textbook with the courseware
● Dedicated student mentoring and support by experienced teaching assistants, answering student questions via online discussion boards

3 See article on LaGuardia Community College in NYTimes, and Nature article discussing how few STEM majors in lecture-based model go on to complete their degree
4 See recent Slate article on HabWorlds
Important Dates and Timeline

<table>
<thead>
<tr>
<th>Selection Process (May to June 2016)</th>
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<tbody>
<tr>
<td>May 5</td>
<td>RFP release</td>
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<tr>
<td>May 13 at 2 PM ET/11 AM PT</td>
<td>RFP Information Webinar (register)</td>
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<tr>
<td>May 20</td>
<td>Questions due</td>
</tr>
<tr>
<td>May 30</td>
<td>Proposal narrative due</td>
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<tr>
<td>June 6</td>
<td>Institutions notified of selection</td>
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Program Timeline

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<tr>
<td>Summer 2016</td>
<td>Training &amp; workshops provided by Inspark</td>
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<tr>
<td>Fall 2016</td>
<td>First deployment</td>
</tr>
<tr>
<td>Spring 2017</td>
<td>Scaling Report Due</td>
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<tr>
<td>Fall 2017</td>
<td>Enrollment milestone achieved</td>
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Eligibility and Selection Criteria

To choose the institutions, an evaluation committee that includes Inspark, Achieving the Dream, the lead academic partner Arizona State University, and several industry experts, will review proposals based on the following:

Eligibility Criteria

- Accredited two-year or four-year postsecondary institution, including state systems
- Unduplicated undergraduate headcount greater than 15,000 preferred
  - Institutions with unduplicated enrollment less than 15,000 still eligible to apply
- Percentage of Pell-eligible students greater than or equal to 30% is preferable

Selection Criteria

- Adoption of Inspark courseware in one or more of the following non-majors 100-level disciplines:
  - Biology
  - Chemistry
  - Physics
  - Environmental Science
  - Geology
  - Astronomy
- At least 50% of student enrollments using Inspark courseware for chosen courses by Fall 2017
- Capacity and willingness to evaluate Learner Success (see Inspark Data Use Agreement)
• Demonstrate commitment to and capacity for successful implementation of Inspark courseware

Expectations for Selected Institutions

Selected institutions agree to:

• Report on number of faculty piloting and number of student enrollments in each course
• Provide course completion data for classes where Inspark courseware is being evaluated – data must be disaggregated by race/ethnicity, gender, and Pell eligibility (see Inspark Data Use Agreement)
• Participate in faculty training and workshops to become familiar with content and technology
• Participate in periodic faculty surveys assessing adoption, usability, learner success, etc.

Contact

Questions regarding this program should be directed to:

David Schönstein
Director of Network Development
Inspark Teaching Network
(415) 490-8054
david.schonstein@inspark.education
About Inspark Courseware

The Inspark courseware are full courses with over 100 hours of learning. They are turn-key and customizable, often used to replace more expensive textbooks. There are currently two courses on offer with more being released early 2017:

BioBeyond

*BioBeyond* is a 4-credit non-majors 100-level introductory biology course that maps closely to traditional disciplinary learning objectives while motivating students with the *Are We Alone?* narrative. The course can be adapted to a majors course.

See also:

- [Introduction video](#)
- [Courseware demo video](#)
- [Sample lesson on Genetics using DNA Builder Simulation](#)

HabWorlds

*HabWorlds* is a 4-credit general education science course with an Astrobiology (*Are We Alone?*) theme that can be used as a full course in Astronomy or Life In The Universe courses, or partially in Physics, Environmental Science, Chemistry, Biology, and Geology courses.
Forthcoming Courses

- Chemistry: early 2017
- Physics: early 2017

Features

Product features and approach to adaptivity:

- **Education Through eXploration**: partnership with Arizona State University using the philosophy of teaching science as exploration of the unknown, not just mastery of the known
- Curriculum innovation: a personalized learning journey that threads the learning objectives of a traditional disciplinary course through real-world science problems
- Project- & enquiry-based: students are motivated by interactive & personalized learning assets (or Projects) such as a Life Detection Lab, Mendelian Classification, and Starfield Search for Life
- Simulations: courses contain some 20 simulations to help students explore and understand complex concepts
- Adaptive: Smart Sparrow platform uses adaptive feedback and adaptive pathways to guide students through problem-solving activities
- Customization: curriculum is modular, can be sequenced and adapted (using the Authoring Environment) to fit to any blended and fully-online delivery
- Analytics: visualize common misconceptions & support students in real-time or retrospectively evaluate the effectiveness of the courseware
- LMS Integration: LTI interoperability ensures integration with all modern LMS including Blackboard, Canvas, and Moodle enabling single sign-on
- Access: $25 per student for unlimited access to the full course
- Accessibility: the courseware is Level AA WCAG 2.0, and Section 508 Compliant
- Support: includes instructor manuals, technical support, faculty training, LMS integration support, faculty professional development (workshops & webinars), and teaching assistants to support students
• Evaluation: all deployments are supported by the Inspark R&E Team (Arizona State University, University of Texas at Arlington, University of California Berkeley, Carnegie Mellon University) incorporating our Learner Success Model measuring outcomes such as scientific reasoning and critical thinking

Courseware content source:
• Collaboration between universities such as Arizona State University (the Inspark Teaching Network) and the Smart Sparrow Learning Design Studio
• Currently piloted by over 40 Teaching Partners, such as Arizona State University, Miami Dade College, Lone Star College, American Public University System, and Central Piedmont Community College, feeding iterative cycles of courseware improvement
• Courseware is owned by Inspark and available to use and adapt

Case Studies and Testimonials

If you would like to contact any of the faculty/institutions from these notable Inspark Teaching Partners below, please let us know and we would be happy to make introductions.

Miami Dade College
Miami Dade College is a lead Teaching Partner on this project. Inspark has been part of their professional development program for two years running with 20 instructors already using the courseware in their courses. Professors have been involved in:
• Professional Development workshops and conferences
• Inspark research and evaluation, measuring improvements in scientific reasoning
• Multi-day campus wide events, called Aliens Among Us at InterAmerican campus, centered on critical thinking and inspired by the HabWorlds course

Instructor Spotlight
Inspark Offering: HabWorlds & BioBeyond
Course Names: General Education Biology Lab (BSC 1005), Energy in the Natural Environment (PSC 1515), Introduction to Oceanography (OCE 1005)
Discipline: Biology & Physical Sciences/Natural Sciences
Instructors: Rene Revuelta & Alfredo Leon
Teaching Mode: Blended
Number of Students: 40 and 80 student sections
Feedback:
"The Inspark project offers educational justice: if it was not for the Inspark project my students would not have access to this kind of high-quality, intellectual, and hands-on learning experience.

The Inspark courseware is really a next-generation textbook, workbook, laboratory book. And it is the textbook for my students. The courseware truly engages my students: Inspark brings – and shows – the importance of formulating questions and exploration to the classroom.

The courseware is challenging, scientifically rigorous, and rich in content."

McGill University
Professors at McGill University have been offering a series of innovative in-class activities centered around the Inspark courseware.
Instructor Spotlight
Inspark Offering: *HabWorlds*
Course Name: Astrobiology (EPSC 182)
Discipline: Planetary Sciences
Instructors: Nicholas Cowen & Boswell Wing
Teaching Mode: Blended
Number of Students: 140
Feedback:
"We ran a flipped classroom of 140 students with Habitable Worlds as the "textbook". The online learning allowed us to be more interactive in class, and we could skip many of the quantitative parts, knowing that the students were getting that through HabWorlds. It was fun to see the kids come in every week having learned a bit more and without having to teach them every little detail."

Mohave Community College
Mohave Community College in Arizona has been instrumental in helping improve the *BioBeyond* course with multiple Faculty Feedback Sessions. Professors have joined workshops and conferences.

Instructor Spotlight
Inspark Offering: *BioBeyond*
Course Name: Biology Concepts with Lab (BIO 100 & BIO 100L)
Discipline: Biology
Instructor: Melissa Ha
Teaching Mode: Blended
Number of Students: 24
Feedback:
10 minute video of Prof. Melissa Ha describing her flipped classroom approach with BioBeyond.

"Inspark offers students high-quality course materials at minimal cost relative to traditional textbooks. In fact, Inspark courseware supersedes traditional textbooks in its ability to engage students and personalize content."

Bristol Community College
Bristol Community College, in Fall River Massachusetts, has been an early adopter of *HabWorlds* and has successfully offered the courseware in a fully-online setting with support from Inspark.

Faculty Spotlight
Inspark Offering: *HabWorlds*
Course Name: Introduction to Astrobiology (AST 192)
Discipline: Astronomy
Instructor: Stephan Martin
Teaching Mode: Fully-online
Number of Students: 25
Feedback:
"Habitable Worlds has not only given my students a firm grounding in scientific principles and process, but it's given them a taste of the thrill of discovery as they search the skies for signs of life!

The Inspark support my students and I received was essential to our success as a class. As a result of their quick professional response, we had next to zero downtime for our online course."
Glendale Community College

Glendale Community College, part of the Maricopa County Community College District in Arizona, has helped with curriculum adoption of HabWorlds with the system and articulation between the community colleges and Arizona State University. Professors have been involved in:

- Professional Development workshops
- Cycles of course improvement and Faculty Feedback Sessions
- A sabbatical to take HabWorlds and adapt it to a standalone Astronomy course

Faculty Spotlight

Inspark Offering: HabWorlds
Course Name: Life in the Universe (AST 106)
Discipline: Astronomy
Instructor: Sally Watt
Teaching Mode: Blended
Number of Students: 48
Feedback:

"Using Habitable Worlds has changed the way I teach. The development of a "flipped" classroom approach for my Life in the Universe course using Habitable Worlds has allowed me to lecture less and employ more active engagement activities in the classroom. Students apply the skills they are learning to real-world applications. I feel that the students gain an incredible amount of astronomy knowledge and have mastery of the calculations and the science behind them."

Arizona State University

ASU is the lead academic partner for this project in addition to being the hub of subject matter expertise for courseware development. HabWorlds was developed at ASU and taught as a fully-online compressed seven week course. BioBeyond is now also being offered.

Faculty Spotlight

Inspark Offering: HabWorlds & BioBeyond
Course Name: Habitable Worlds (SES 106) & The Living World (BIO 100)
Discipline: Astrobiology & Biology
Instructor: Ariel Anbar
Teaching Mode: Fully-online
Number of Students: 400 & 200

Student Feedback

"I was able to open up my mind to topics that have always scared me (science and math) and I learned that I could enjoy it and that I was capable of doing it."

"... each new idea and concept [was presented] in small, bite-sized modules, which included highly interactive tutorials and reinforcement exercises. This was a revelation for me, I felt like I was truly learning instead of just memorizing and regurgitating."

"[this] innovative approach to teaching made the impossible seem possible...Prior to his class, I had no interest in any form of science. Now I find myself scouring the Internet for news about newfound solar systems and the possibility of another habitable world."
“I’ll never look at the stars or planets or atmospheric cycles or consider the search for life the same again! If your goal was to open our eyes, well, congratulations you did!”

Preliminary Evaluations

HabWorlds

Instructor Survey
For 6 instructors that piloted HabWorlds in Fall 2015, the average satisfaction, on a scale of 1 (highly dissatisfied) to 5 (highly satisfied), the average response was 4.83. The question was: “Overall, how satisfied have you been when using HabWorlds in your course(s)?”

ASU Student Learning
Overall, two thirds of students received 90% or higher on the HabWorlds Project, the main application of their learning and major assessment in the course. Through this summative activity, students demonstrate that they have retained important concepts and that they can apply them in a novel situation.

ASU Student Surveys
At the end of the semester, students rated their agreement with the statement: “This course was a good way of learning about the subject matter,” at 4.4 out of 5 (n = 821). Similarly, they rated their agreement with the statement: “This course had a positive effect on my interest in science,” at 4.2 out of 5 (n = 819).

Students responded to the Classroom Undergraduate Research Experience (CURE) survey before and after completing the course. There was a statistically significant increase in students agreeing with the statement:

- “I can do well in science courses.”
- “Even if I forget the facts, I'll still be able to use the thinking skills I learn in science.”

Preliminary evidence also suggests that students leave the course with a:

- greater understanding of the scientific process
- greater confidence in their own scientific abilities, and
- a good understanding of the specific concepts underlying the search for exoplanets.

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BioBeyond

Student Survey

Students were provided with the following statement: "BioBeyond is more helpful than a textbook". In the survey, the majority of students said BioBeyond was superior to a textbook.

Miami Dade College

Mohave Community College