



Link to sign-up

<https://www.surveymonkey.com/r/FCRSTEMBio>

Target Audience

Biology 1 (#2000310) • Biology 1 Honors (#2000320)

Questions?

Please contact us at fcr-stemlearn@cpalms.org if you have any questions.

Description

The FCR-STEMLearn Integrated Biology track brings together content from both the Diversity and Ecology and Cell Biology FCR-STEMLearn institutes.

Participants will enjoy an intensive opportunity to strengthen their knowledge and practice regarding many biology classroom concepts. This Professional Development (PD) program emphasizes that heredity, reproduction, and the interdependence of living organisms contribute to evolution, which is the ultimate explanation for the diversity of life on Earth. It also offers Biology teachers the opportunity to learn fundamental biological principles that apply to human health and disease. Teachers will be exposed to biology using a real-world context-- their own health-- to strengthen the relevancy of science to a student's every day experiences.

Participants will develop confidence in introducing biological concepts through guided inquiry and argumentation activities, Predict-Observe-Explain, and project-based activities and pedagogies. Participants will receive content instruction in each of the major units of study described at the end of this flyer, as well as experience with 3D printed kits and accompanying lessons, Model-Eliciting Activities (MEAs), statistical analysis software, and Mantis sensors and probeware. Lectures and supporting activities are aligned to the NGSSS as well as the Florida Mathematics Standards (MAFS) which are integrated throughout the institute.

Benefits

- \$750 stipend upon completion of ALL program requirements including attending the PD training days, the post-tests, and selecting the lessons that the participant plans on using in their classroom.
- M-DCPS will award 60 Master Plan Points for participants who complete the program.
- Access unique curricular resources along with access to the FCR-STEM/MySTEMKits 3D printed kits and curriculum.
- Receive probeware/sensors kits that will be used for conducting experiments in the classroom.
- Receive training to different freely available software applications related to their field.
- Overall value of the kits, sensors, curriculum, and stipend can add up to \$3,000 in value.
- Working closely with university faculty who have not only a deep understanding of the content, but also knowledge of the latest research and findings in their areas.
- An opportunity to work with other Biology teachers in your district and build your professional network.
- Receive training on CPALMS.
- Receive the FCR-STEMLearn Certificate after completing all the required phases.

Program Phases & Components

There are three required phases in this program plus Research and Evaluation questionnaires to complete.

Required Phase I: 2016-2017 School Year PD (2 days) and Classroom Implementation

- Two days during current school year. Specifically, one day in October (24, 25, or 28 varies by location) and one day in December (5, 6, or 8 varies by location).
- The two School Year PD days will be offered regionally. Please see Dates and Locations below for specific training dates and locations by region.
- Participants will be provided access to follow-up lesson plans and instructional resources that support the transfer of new knowledge to the classroom.

- Participants will be required to teach at least one lesson for each of the instructional units specified in the program.
- The participant has the flexibility of setting up the schedule of when these lessons are implemented in the classrooms.
- The participant will be required to complete a follow-up survey after teaching each of the lessons.
- Often these materials require 3D printed kits, sensors, or software applications. Teachers will be provided these specialized supplies that are necessary to successfully implement these lessons.

Required Phase II: Summer Institute (6 days)

Program participants will attend the Integrated Biology summer institute over 6 days led by university faculty. The summer institute will focus on strengthening content knowledge and pedagogy.

- Monday, June 12, 2017 through Thursday June 15, 2017 and
- Monday and Tuesday June 19 and 20, 2017

Please note: The location for the Summer Institute is TBA. There will be one location for the whole district for the summer dates, whereas the two School Year PD days will be offered regionally.

Required Phase III: 2017-2018 School Year Classroom Implementation

- Participants will be provided access to follow-up lesson plans and instructional resources that support the transfer of new knowledge to the classroom.
- Participants will be required to teach at least one lesson for each of the instructional units specified in the program.
- The participant has the flexibility of setting up the schedule of when these lessons are implemented in the classrooms.
- The participant will be required to complete a follow-up survey after teaching each of the lessons.
- Often these materials require 3D printed kits, sensors, or software applications. Teachers will be provided these specialized supplies that are necessary to successfully implement these lessons.

Required: Research and Evaluation

The sole purpose of the evaluation program is to assess the quality and impacts of the professional development program, not to evaluate individual participants, schools, or districts. Neither your name nor your school's name will be reported. There will be a series of pre-tests and post-tests as well as the follow-up feedback forms for the lessons used during the school years. There are 3 online surveys and combined they will take participants approximately 1 to 1.5 hours to complete at both pre-test and post-test. ***No specific score is required to qualify and participants should not do any special preparation or use outside help to complete these questionnaires.***

Dates and Locations for October and December

North Region

October 28, 2016 and
December 8, 2016

CPL at Thomas Jefferson Middle School
525 NW 147th Street Miami, FL 33168

Central Region

October 25, 2016 and
December 6, 2016

West Miami Middle School
7525 SW 24th Street Miami, FL 33155

South Region

October 24, 2016 and
December 5, 2016

Center for International Education
900 NE 23 Ave. Homestead, FL 33033

Please note: The location for the Summer Institute is TBA.

There will be one location for the whole district for the summer dates, whereas the two School Year PD days are offered regionally.

Eligibility

You must meet all these requirements in order to apply:

- Active classroom teacher or instructional coach of one or multiple Biology courses
- Your administration should agree to your participation prior to you signing up

- Commitment to complete all required phases
- This Integrated Biology institute brings together content from the Diversity and Ecology and Cell Biology institutes offered in the past. If you have attended one of those institutes previously, you are still eligible to attend this new combined professional development track.

Background

FCR-STEMLearn is developed and provided by the Florida Center for Research in Science, Technology, Engineering, and Mathematics (FCR-STEM) at the Florida State University in partnership with approximately 55 Florida school districts. The current FCR-STEMLearn program is funded by the US Department of Education's Mathematics and Science Partnership (MSP) program through the Florida Department of Education.

Frequently Asked Questions

Eligibility

If I participated in a past FCR-STEMLearn Summer Institute or BIOSCOPES, may I attend Integrated Biology?

This Integrated Biology institute brings together content from the Diversity and Ecology and Cell Biology institutes offered in the past. If you have attended one of those institutes previously, you are still eligible to attend this new combined professional development track.

What is the attendance policy for the training?

Attendance at both the 2 school year PD days and also throughout the 6 summer institute days is required. Participants are required to attend all PD days in their entirety. Please do not schedule personal appointments during training time.

What are the daily meeting times?

- October and December PD days
 - The daily meeting times will be 8:30 to 3:30. Please plan to arrive prior to 8:30 so that we can start promptly at 8:30 AM.
- June Summer Institute Days (6/12, 6/13, 6/14, 6/15 and 6/19, 6/20)
 - The daily meeting times will be 8:00 to 4:30. Please plan to arrive prior to 8:00 so that we can start promptly at 8:00 AM.

I can only attend one portion of the training, but not all. Should I apply?

No. Participants are required to attend all 8 days of training. Please see attendance policy above for further details.

Payment and Lesson Kits

How will I be paid?

Check or direct deposit.

What forms do I have to complete to get paid at the end of the program?

Every participant will be required to complete the FSU vendor registration form and a direct deposit form (for direct deposit). These forms will be communicated to you along with instructions during the spring 2017. You are required to complete and return these forms to continue to be in the program and eventually get paid.

When will the stipend be sent out to participants?

The \$750 stipend will be paid upon completion of all PD training days, the post-tests, and selecting the lessons that the participant plans on using in their classroom.

Which 3D printed kits and sensors/probe ware will I receive? How many kits will I receive?

Each track has a follow-up program that includes multiple lessons for each of the units of study within the PD program. Participants will have the choice of the lesson(s) they choose to implement for each unit and flexibility of time implementation during the school year. At the end of the summer program, the participants will be required to complete a plan for what lessons they choose and when they plan to use them in their classroom. The sensors/probe-ware and/or 3D kits that are required to implement a lesson will be provided to the participant as a classroom kit. A classroom kit is defined based on what the lesson requires and these requirements will be communicated with the descriptions of the lessons when the participant creates their follow-up program. Tablets and computers are not provided to participants but tablets/mobile devices are required for using the sensors/probe-ware.

Travel

All training will take place within Miami-Dade County and thus travel is not applicable for this program.

Other

How many PD points/credits will I earn?

M-DCPS will award 60 Master Plan Points for participants who complete the program. Neither FCR-STEM nor FSU can directly award inservice points to participants, but we will work with district professional development contacts to verify teachers' participation and program completion.

What are the Laptop/Technology Requirements?

A laptop is required (tablets and iPads will not suffice). If you do not have a work or personal laptop, please make arrangements to borrow one from your school. Laptops should be wireless capable and have a current browser (Internet Explorer 10 or later, Safari 5 or later, Firefox 23 or later, Chrome 28 or later) and the free Microsoft Silverlight plugin which can be downloaded from www.microsoft.com/silverlight.

Questions?

Please contact us at fcr-stemlearn@cpalms.org if you have any questions.

Integrated Biology Units of Study:

- Statistics and Data Analysis: Understand how relationships between variables can be quantified, tested, and used to create predictive mathematical models.
- Genetics and Natural Selection: Investigate how genetic diversity is created at the chromosomal level and predict changes in genotypic and phenotypic variation over time.
- Biogeography: Explore large-scale geographic patterns of trait variation within and among species; patterns can be used to explain the Darwinian principle of descent with modification.
- Ecology: Assess the evolutionary basis of individual behaviors, predict population dynamics over time, and understand the interdependence of predators and their prey.
- Macroevolution: identify patterns of evolutionary diversification and evolutionary history through use of phylogenetic analyses.
- The Hot Zone: activities will focus on our understanding the diversity of cells, what differentiates a living organism from non-living material, what microorganisms are present in our everyday life, and how pathogens travel.
- Energy Regulation: activities will focus on regulation of glucose homeostasis and the interconnection of various body systems, as well as regulation of cellular respiration.
- Investigating Transport: principles of osmosis and diffusion that are critical to cellular and tissue function will be investigated using agar cubes and modeling kidney dialysis.
- Proteins: DNA to RNA to Protein, will be elaborated on as we delve into the mechanics of how proteins are made and how they carry out their myriad of functions.
- Neuroscience: teachable neuroscience concepts that illustrate the relationship between structure and function of the brain using 3D printed MySTEMKits.
- War on Cancer: we will analyze cellular events that lead to cancer as well as how chemotherapies are effective against uncontrolled cell division.