

Students Take Charge: College-Readiness through Educational Independence and Problem-Based Instruction

Co-Principals: Alisa Berger and Mary Moss

School Type: High School

Neighborhood: Soho, Manhattan

Title I: Yes

Total Enrollment: 100

ELL: 1

Special Ed: 1

Web site: www.NYCiSchool.org

Asian or Native Hawaiian/Pacific Islander:	10%
American Indian or Alaska Native	0%
Black or African American:	28%
Hispanic or Latino:	40%
White:	21%

Principals' Vision:

Charged with starting a school for the 21st-century, Principals Berger and Moss's vision is to create a learning environment of educational independence through choice and responsibility, in which students understand they are the most important part of their own learning. According to this student-centric vision, the school is designed to help students develop basic habits of mind and study skills that fit their individual learning styles. Through problem-based instruction aided by distance learning technology, students are able to apply what they learn to real-world problems. The principals stress that they would like visitors to the NYC iSchool to see teaching and learning, not technology. Technology is simply a tool used to *enhance* teaching and learning.

Instructional Goals:

Student-Centric Learning

Interdisciplinary, Problem-Based Instruction (Modules)

The curriculum at NYC iSchool is interdisciplinary and pushes students to think across subject areas to engage with the "big ideas" of 21st-century society. Every quarter, students choose one interdisciplinary course. These courses, called modules, are problem-based and focus on real-life issues. This is the primary mode of instruction at the NYC iSchool. In the fall of 2008, two of the modules were "The Psychology and Neuroscience of Learning" and "The Humanitarian Crisis in Zimbabwe."

Modules incorporate electronic media, such as podcasts, Web sites, Facebook pages, and videos, often created by the students themselves with the school's digital cameras, Flips, and iMovie. The principals

stress that since students use the Internet for research, they must be explicitly taught how to evaluate online content.

The nine-week “Psychology and Neuroscience of Learning” module was co-taught by teachers with two different perspectives: Ms. Rygalski brought the humanities perspective to the course, and Ms. Herzog brought the science perspective. Upon successful completion of the module, the students receive one course credit in English and one in science.



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**PSYCHOLOGY AND NEUROSCIENCE OF LEARNING
COURSE SYLLABUS
FALL 2008**

INSTRUCTORS: Jennifer Rygalski and Susan Herzog

Credits Earned:	2 (1 Science, 1 English)
Instructor Emails:	jrygalski@mail.nycischool.org sherzog@mail.nycischool.org
Office Hours	By appointment

A. COURSE DESCRIPTION

In this inter-disciplinary course students will explore what is known about how people learn, and how that learning takes place in the physical structures and biological functions of the human brain. They will have the opportunity to choose a neuroscience topic that especially interests them for deeper individual study. Each student will then apply this understanding of “Mind” and “Brain” to reflect on how he or she learns best and create a personal plan for their learning during the 9th grade and throughout their iSchool career.

B. ORGANIZATION

The NYCiSchool is founded on the beliefs that students learn best by actively doing work they care about and that students thrive on choice and responsibility. Psychology and Neuroscience of Learning exemplifies these beliefs through engaging students in understanding how they themselves learn. They will be able to choose to independently learn more about something they find especially interesting. Using the knowledge gained they will have the responsibility to create their own learning plan and present it to their teachers and family. The nine-week interdisciplinary module will be co-taught by teachers who bring to it two perspectives on learning, those of the Humanities and of Science, and upon successful completion, students will receive one course credit in each of these subjects.

Student experiences will include reading, writing, speaking and listening, viewing and creating electronic media, and carrying out experiments. They will be given access to all class materials through The “I”, where extensive out-of-class assignments, correspondence, and administrative matters will take place.

1. Allow students to reflect on their own learning strengths and weaknesses through study of modern perspectives on intelligence, creativity, learning, and brain structure and function.
2. Prepare students with the language literacy skills needed to be successful in high school and college.
3. Give students the opportunity to write often. They will write pieces of different lengths and will have the opportunity to take pieces of writing through the writing process, which includes, planning, drafting, revising, peer reviewing, editing, and publishing.
4. Provide students with multiple opportunities to improve their discussion and oral presentation skills.
5. Allow students to see the power of viewing problems from a variety of perspectives through active participation in an interdisciplinary course of study.
6. Help students develop habits of mind and study skills that fit their learning styles and prepare them to be successful iSchool and life-long learners.

COURSE TOPICS

This course will cover the following topics:

1. What is intelligence? What is creativity? Are they the same? In what ways am I intelligent and creative?
2. Are "Mind" and "Brain" the same – Why or why not?
3. What is the brain made of? What are its different parts?
4. Do I have a preferred learning style? Is this really the best way for me to learn? How can I use this understanding to create the best learning environment for myself?
5. How does our brain develop over time and how is it similar to and different from other animals' brains?
6. What is Memory? What are different kinds of memory? What strategies can I use to improve my memory?
7. How does the brain make memories? How does memory take place at the cellular level? What is the structure of brain cells (neurons) and how do they communicate?
8. How does language reflect intelligence, and what are my strengths and weaknesses in the various aspects of language: Reading, Writing, Listening, Speaking, and Comprehending? What strategies can I use to strengthen each of them?
9. What are modern technologies for studying healthy brain functioning and damage to the brain through errors in development, injury, or disease?
10. How does emotion affect my learning, and what is the brain-basis of emotion?
11. What is social intelligence, how does this affect my learning, and what are effective strategies for successful social relationships?
12. How will my learning be assessed, and how can I best prepare to be successful in these assessments?
13. What is my short term and long term plan to apply what I have learned in this course to improve my learning?

The syllabus content reflects a founding principle of the iSchool: students need to be aware of how they learn in order to figure out the strategies that work best for them. It is only then that they can make responsible choices about their education.

Partnerships with Corporations and Non-Profit Organizations

Often, the problem-based modules are linked to real organizations that need to address real problems (i.e. National 9/11 Museum, Lexmark, NYU, History Channel, PBS/Channel 13, The Museum of the City of New York). These organizations are clients of NYC iSchool students, who act as independent consultants. For example, the 9/11 Museum is planning a youth-centered exhibit that will be viewed by youth from all over the world. By working with students at the NYC iSchool, museum curators were able to gain a better understanding of the youth perspective. Students participating in this module learned about how context shapes an individual's understanding of a given event. By communicating via video-conference with students in Afghanistan, London, Israel, and New Orleans, they were able to provide the 9/11 Museum with a wide-array of voices. The extensive scope of student research would not have been possible without video-conferencing, discussed in greater detail below.

Computer Simulations

Students also use computer simulations designed to replicate real-world challenges. For example, students who participated in the "Clean-Up" module were grouped as environmental consulting teams and "hired" to hunt for evidence of land contamination through an online simulation designed by a professor at Barnard College. The computer simulation allowed students to engage in a professional experience that would not have been practical, or even possible, during the school day.

Non-Module Curriculum

Some material that every high school student needs to learn to satisfy State standards does not easily fit into the module structure (for example, Shakespeare and labs). This material is integrated into "Core Experiences" courses. Math is another subject area that is not taught solely through modules. Instead, it is taught largely through online courses, as discussed below. Another requirement of the NYC iSchool curriculum is that every student completes an internship called a Field Experience Project, or FEP. The purpose of the FEP, like the modules, is to make learning more relevant to real-world experiences.

Individualized, Independent Work through Online Courses

Online coursework allows for differentiation, and encourages students to take greater responsibility for their education. In the following blog post, a student at NYC iSchool explains how online classes have helped her to understand the necessity of commitment and discipline:
<http://gothamschools.org/2008/12/02/online-courses-fair-or-fraud/>

Regents Prep

Because all students learn at different paces and start at different levels of understanding, they work independently on Regents prep work through online courses. Math, for example, has traditional class time, as well as periods of online coursework. Online courses allow students to receive instruction only in areas in which they need extra focus. Students take practice Regents every nine weeks, which allows teachers to track their performance, usually using Google spreadsheets.

Foreign Language and Advanced Placement Classes

This coming year, the NYC iSchool is also offering online classes that are not for Regents prep. Extensive independent work is possible because the school has a one-to-one ratio of students to laptops. The school uses "dummy laptops" that only allow access to the Internet and virtual desktops.

Supplemental Learning Activities through Specialized Software

NYC iSchool recently purchased Compass software (<http://www.compasslearningodyssey.com/>) for use in Biology, Chemistry, and U.S. History. Compass provides teachers with online multimedia content and standards-aligned curricula that are interactive and self-paced. Compass activities for students are designed to promote problem-solving and to encourage them to make real-world connections. Compass also includes embedded assessments. Overall, however, NYC iSchool uses free, easy-to-use software, such as Google Apps, whenever possible.

Distance Learning Enabled by Video Conference

For modules, teachers bring in subject-matter experts through video conferencing. For example, students were able to interact with Zimbabwean journalists for the “Humanitarian Crisis” module. As in the 9/11 project described above, video conference gave students the opportunity to understand international perspectives through direct interaction. Rather than learning about human rights and world history from textbooks, students were taught to make direct connections to current events, and to seek powerful global perspectives. Distance learning technology is a tool that the NYC iSchool has used to make learning feel more relevant for its students.

In math, video conferencing is used for students performing at higher levels than the rest of the class. For example, this past year, there was a group of 11 students who were ready to move past algebra to geometry, a subject that the math teacher was not comfortable teaching. The NYC iSchool solved this problem by hiring a teacher from another New York City high school and paying him by the hour. He taught this small group of students through video-conference.

The distance learning software used for small group interaction with an individual teacher is Webex. Webex does not require extensive set-up or extra equipment. For large group videoconferencing, teachers use Polycom. It is a more robust system, but it is also more expensive and complex, and both partners need to have it

Educational Independence

Student-Created Learning Plans

Each student is assigned one advisor throughout his or her high school years. This advisor works to ensure that the student’s academic and personal goals are met. Both principals are assigned a group of advisees, as well. Students are responsible for creating their own learning plans and presenting their choices to their teachers, advisors, and family. Learning plans are based on individual learning styles; the idea is that students who have an understanding of how they learn best can tailor the way they study in order to be successful.

Student-Led Parent-Teacher Conferences

Parent engagement takes place mainly through student-led 20 minute conferences with the student’s parents and advisor. After a three-week reflection process with their advisors, students present their work and explain where they are and what they need to do to progress. There has been 98 percent parent turnout to these conferences, which take place at the end of each quarter.

Parents have access to the school’s online portal (the “i,” discussed below), which allows them to see their child’s courses and final grades. However, they do not have log-ins to the Moodle (a learning

management system, also discussed below), which would give them access to more detailed information about interim grades and assignments. Principal Berger has been cautious about encouraging too much parental involvement because it would compromise the educational independence that drives the school. She believes that students need to learn to take responsibility for their assignments, since this is what will be expected of them in college. She offers them a safe space in which to learn to take charge of their education, and to openly share their overall plans and progress with their parents.

Online Communication and Collaboration:

Virtual Classroom through the Moodle Learning Management System

All material and communication related to each class is made accessible through an online instructional space called the Moodle (<http://moodle.org>). It is similar to a virtual classroom where students, teachers, and field experts can collaborate and communicate through discussion boards and online forums. Teachers can also use it as an administrative space to post student assignments, multimedia content, and class notes. To access the Moodle, students must log in to the school's internal network. Below is a photo of a student Moodle page:

The screenshot displays the Moodle interface for NYC iSchool. At the top right, it indicates the user is logged in as 'Irvin Navarro' with a 'Logout' link and the language is set to 'English (en)'. The main navigation bar includes 'Home' and 'Courses'. On the left, there are two sidebars: 'Course categories' showing 'Miscellaneous' and 'Hidden' with a link to 'All courses ...', and 'Site Administration' with a tree view including 'Notifications', 'Users', 'Courses', 'Grades', 'Location', 'Language', 'Modules', 'Security', 'Appearance', 'Front Page', 'Server', 'Networking', 'Reports', 'Miscellaneous', 'Extra Features', and 'Web Services'. The main content area is titled 'Available Courses' and lists several courses with their respective teachers and descriptions. A 'Turn editing on' button is located at the top right of the course list. A calendar for April 2009 is positioned on the right side of the page.

Moodle Benefits for Teachers

The Moodle allows teachers to:

- see where a student stands in comparison to the rest of the class
- monitor academic progress and make appropriate adjustments to keep higher performing students engaged and provide adequate support to students who are struggling

- create online courses
- easily deliver class materials, including self-correcting quizzes
- track individual student contributions to group work

Smartboards and Inter-write boards work conveniently with the Moodle. Teachers project their lesson plans from their computers (which saves them the time of writing out examples as they go), and then they can easily save the lessons and post them directly to the Moodle.

Moodle Benefits for Students

The Moodle has helped students actively participate in their own learning. When students sign in to their personal account on the Moodle, they can enroll themselves in the classes they will be taking that quarter. They are able to access their files and assignments, and can immediately see feedback from their teachers on the specific problems they got right or wrong and why. The Moodle also extends learning into the home.

The “I” Intranet Site

In order to access the Moodle, students must first log in to an online portal called the “I.” The “I” is a data/information space that includes school calendars, transcripts, forms, attendance, and event announcements. The “I” is not to be confused with the school’s public Web site, which includes only basic information about the school that is available to the general public.

The screenshot displays the NYC iSchool Teacher Portal. At the top, it says 'Schools > Teacher' and 'Welcome Navarro Irvin'. Below the header, there's a search bar and a dropdown menu set to 'This Site: Teacher'. The main navigation bar includes 'Teacher', 'Teacher Email', 'Class Media Libraries', 'ClassDetails', 'Logs', and 'NYC iSchool Parent's Association'. A left sidebar contains a 'Recycle Bin' and a list of site content categories: 'Parent's Association', 'Student', 'Teacher', 'Documents', 'Lists', 'Discussions', 'Sites', 'People and Groups', 'Class Media Libraries', 'ClassDetails', 'Logs', and 'NYC iSchool Parent's Association'. The main content area is titled 'Portal for teachers' and features a 'My Classes' table with the following data:

Course	Moodle
Call to Action: Crisis in Zimbabwe	[Moodle icon]
Living Environment 4th Quarter	[Moodle icon]
Call to Action: Crisis in Zimbabwe	[Moodle icon]
Living Environment Online Part 2	[Moodle icon]
Climate Change Part 2	[Moodle icon]
Voices and Memories Third Quarter	[Moodle icon]
Global History Part 3	[Moodle icon]
iPlanners Advisory	[Moodle icon]
iPhoto @ the iSchool	[Moodle icon]
Physical Education	[Moodle icon]
Exploring Art	[Moodle icon]

On the right side of the page, there are sections for 'Links' (listing items like 'Structured Study Hall Referral Spreadsheet' and 'iSquad Helpdesk Ticket Submission'), 'Shared Documents' (with an 'Access denied' message), and 'Teacher Resources' (listing 'NYC DOE Home', 'Moodle', 'Teacher Resources', 'Teacher E-Mail', 'Tech Tutorials', and 'Certification').

Virtual Desktop Interface (VDI)

VDI allows access to the desktop and files located on the school network anywhere, at any time. Regardless of the condition or age of the computing device used offsite (home, library, etc.), as long as it can connect to the Internet, the screen, files, and programs will be exactly the same as they are in school. This frees students from the potential safety risk of carrying school-assigned laptops to and from the building. According to Principal Berger, it is also the NYC iSchool's "solution to the digital divide." It puts the investment for ubiquitous access into the backend rather than into individual user devices (i.e. one-to-one computing.)

Google spreadsheets for Tracking of Student Data

The school uses Google spreadsheets for communication between teachers and administrators about student progress. Teachers enter student grades in real time and can provide immediate access to whoever needs it.

Implementation of Technology:

Budgeting and Procurement

NYC iSchool received generous start-up funding from philanthropists and corporations. Mort Zuckerman provided the school with \$1 million in start-up funds. Cisco provided \$250,000 in start-up money, as well as an additional \$250,000 of in-kind contributions such as consultants. Principals Berger and Moss used most of Mr. Zuckerman's funding to invest in the school's infrastructure, and most of the Cisco money for planning and curriculum design. The DOE budget was used to pay for all staff, except for the computer technician. The principals were able to set aside some of the donation money to get the school through next year and help transition to regular DOE and external grant funding.

The school also received donations from Dell: three desktops, six tablets, and two large screen monitors. There was no conscious decision that led to the choice of PCs over Macs, and the school can transfer information from one to the other if necessary.

NYC iSchool spends a relatively small proportion of its budget on software. Its biggest software expense is Citrix's Virtual Desktop Interface (VDI) software, which allows for remote desktop access (as discussed above). NYC iSchool recently purchased Classlink, which is a front-end for VDI that is more user-friendly for the education world. Classlink comes with tech support that students can call 24 hours per day, seven days per week. What is most expensive are the "concurrent per user licenses," which are necessary for VDI software. The per user licenses cost the school \$100,000.

NYC iSchool will need to think about how to maintain its capacity for instructional and administrative success without the initial funding stream that propelled its start up. The increase in student enrollment (as the school expands beyond 9th grade) is also an issue that needs to be considered when it comes to budgeting.

Staffing Roles Related to Technology

Computer Technician

Irvin Navarro is the school's full-time computer technician. His position is funded by a Cisco grant, and he is responsible for all hardware maintenance and management. For example, he maintains the Virtual Desktop Infrastructure (VDI), which allows students remote access to their personalized desktops from wherever they choose to log in. Mr. Navarro also provides direct support to teachers and students.

Technology Coach

Curtis Borg is the school's full-time special education teacher and technology coach. He helps with all professional development to avoid the cost of outside vendors. His role is to think about how teachers can more effectively integrate technology into instruction, and to make sure that it is actually enhancing instruction. He also helps with in-house computer maintenance and support, and identifies new, promising technologies.

Technology Consultants

Cisco grant money also funded a consulting group that helped develop and customize the school's Moodle.

Tech Support

Student Tech Squad

In addition to the two technology staff members, 11 students comprise a volunteer tech squad. Curtis Borg acts as this group's advisor, teaching them how to do basic troubleshooting. The tech squad manages classroom technology problems with a system of online work request forms.

Professional Development

Every week, teachers have a one-hour meeting with the principals to discuss their students. In addition, there is a two-hour weekly period devoted strictly to professional development. Tech coach Curtis Borg leads "How To" tech professional development, and Principal Moss leads professional development focused on developing teachers' skills with assessment and planning. Like everything else at the NYC iSchool, professional development is specialized for individual teacher needs. The principals stress that it needs to be embedded within the real work of a teacher.

Contact Information:

You can reach Principal Alisa Berger at ABerger@schools.nyc.gov, 917.237.7300.
You can reach Principal Mary Moss at MMoss@schools.nyc.gov, 917. 237.7325.