

**Illinois Science Teaching Association**

**2022 State Conference**



**The Path Forward**

**September 30, 2022**

**Illinois Institute of Technology**

**Rice Campus - Wheaton, Illinois**

## General Schedule

7:30 - 3:30	Registration	Atrium
8:00 - 9:30	Continental Breakfast	Atrium
9:00 - 3:30	Exhibits	Atrium/Hallways
9:30 - 12:20	Concurrent Sessions	Various Rooms
12:30 - 1:20	Lunch	203
1:00 - 1:20	General Business Meeting	203
1:30 - 3:20	Concurrent Sessions	Various Rooms
3:30	Raffle	Atrium

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## BrainPOP Science

### Inspire the scientist in every middle school student

Every student can learn to think, act and argue like real scientists. Provide exciting opportunities to apply knowledge and practice science in multiple contexts that complement your core science curriculum.



### Activate curiosity and prior knowledge

Capture students' attention with a guiding question centered around a real-world phenomenon that middle school students are really interested in.



75+ ready-to-use Investigations



Coverage across Physical, Life, and Earth & Space Science

### Observe and deepen understanding

Students interact with various resources to add, edit and organize observations and evidence that guide their intuitive Claim-Evidence-Reasoning process.



Digital tools including Simulations, 3D Worlds, and Data Manipulatives



Embedded with digital science and engineering practices



Content-rich resources including Movies, Related readings, Worksheets



Quizzes for teachers to check for understanding

### Explain and defend a claim

Students complete the Claim-Evidence-Reasoning process and engage their argumentative writing skills to elaborate on observations and defend their claim.



Students edit observations into evidence



Students explain "why and how" their evidence supports the claim

**"The experiences mirror the authentic work professional scientists do, which requires my students to use their reasoning skills. The answers require deep thought rather than quick recall."**

Kathern Strickert, Wichita School District

Discover more at [go.brainpop.com/science](https://go.brainpop.com/science)

9:30 - 10:20

**Room: 103**

**Audience: STEM, Grades k-12**

### **Taking the Next Steps with Vocabulary Strategies**

Experience ways to zoom in and zoom out of science content using a variety of differentiated strategies and structures. Take these vocabulary ideas straight back to your classroom for immediate use. Great for interventions too!

*Presenter: Susan Arnette*

**Room 114**

**Audience: General Sci., Grades k-12**

### **Cooperating Teacher 101**

Teachers are typically given a student teacher with little to no guidance or information on how to best support them in their classroom. This session will provide real-world tips and strategies on how you can be a highly effective mentor next time you host a student teacher.

*Presenters: Paul Fix, Laura Passe,  
Spencer Rudie, Taylor Salgado*

**Room:118**

**Audience: STEM. Grades 6-8**

### **Looking For STEMulating Activities? Let Us Help!**

Members of the DuPage Regional Office of Education (ROE) STEM Squad will share ideas for activities to be used both during class and in after-school sessions. We will participate in your school's STEM night, too! We provide resources, we can lend you materials, or we can be there in person!

*Presenters: Susan Camasta, Patty Zriny*

9:30 - 10:20

**Room: 123**

**Audience: STEM, Grades k-12**

### **Developing a Generation of Problem Solvers**

Learn how Marquardt D15's Exploration University connects pre-service educators from NIU with diverse learners to engage them in robust STEM challenges. Explore strategies to foster communication skills, encourage effective collaboration, and build habits of mind that transcend the classroom.

*Presenters: Lorri Coates, Sarah Slater*

**Room: 155**

**Audience: General Sci., Grades 6-8**

### **RAP (using Rubrics to Assess the NGSS Practices)**

Use a rubric to assess students as they develop and use models, construct explanations, and engage in argument from evidence. Participants will then learn how to modify the rubric to meet their students' needs.

*Presenter: Kristi Van Hovein*

**Room: 163**

**Audience: General Sci., Grades 9-12**

### **Bridging the Gap: Connecting Science, STEM & CTE**

Student understanding of how science is used within their chosen career pathway is a critical component of many Career & Technical Education programs, but for a variety of reasons these connections are often overlooked. We will explore strategies for bridging the gap between science, STEM & CTE.

*Presenters: Chris Embry Mohr, Dina Lemmer*

9:30 - 10:20

**Room: 236**

**Audience: General Sci., Grades 9-12**

**Planning and Teaching NGSS Engineering Design**

A qualitative phenomenological study investigated high school science teachers who planned and taught lessons that integrated NGSS engineering design practices. Analysis of the data revealed best practices for instruction, assessment, and professional development.

*Presenter: Racnel Stasi*

**Room: 239**

**Audience: STEM, Grades k-12**

**Making A Career In Science Education In 2022**

Confused about what to do post COVID? Thinking about switching careers? Learn about the experiences, challenges, and mistakes made by several esteemed science education leaders in this engaging and interactive panel discussion. This panel discussion features current and former teachers, school leaders, district leaders, consultants, academics, national STEM education leaders.

*Presenter: Mike Lach*

**Room: 166**

**Audience: Bio/Chem, Grades 9-12**

**Benefits of Pre-AP Biology & Pre-AP Chemistry**

Pre-AP empowers all students to learn, grow, and succeed, building critical thinking skills for high school and beyond. We will examine how Pre-AP Program promotes equity and how Pre-AP science frameworks are back-mapped from AP expectations and aligned to the Illinois Learning Standards in Science.

*Presenters: Renata Elvey, Candace Gentry*

10:30 - 11:20

**Room: 103**

**Audience: Biology, Grades 9-12**

**Illinois Biology Storylines: An Overview**

These storyline units, which are now being used by teachers in all 50 states and at least 15 countries, have proven to be effective models of how three-dimensional learning can be applied in today's biology instruction and lead to students becoming more self-directed learners and thinkers.

*Presenters: Jason Crean, Kristin Rademaker*

**Room: 123**

**Audience: Physics, Grades 9-12**

**Rocketry + Avionics: Taking Data to New Heights**

Inspired by recent space launches? Wondering how to capture the excitement with your students? Join us to learn how we use rocketry and avionics to teach data analysis and system engineering. This course allows exploration of Newton's 2nd Law through guided modules that develop knowledge and skills.

*Presenters: Heather Arnett, Tim Plomin,  
Chris Sewell, John Kim, Anna Hylbert,  
Seongyong Hong*

**Room: 236**

**Audience: Biology, Grades 9-12**

**Modeling molecular mechanisms of addiction**

This hands-on session introduces teachers to physical models that explore the mechanisms of cell communication in the brain at the molecular level, including the specific application to teaching the pathways of addiction. Model kits from 3D Molecular Designs will be available for participants to use during the session.

*Presenter: Alan Allmen*

**10:30 - 11:20**

**Room: 239**

**Audience: STEM, Grades k-12**

**Let Learning Grow with STEM and agriculture**

Connecting agriculture to STEAM education is an excellent way to help students understand the importance of the agriculture all around them. This interactive presentation includes lessons, activities, and resources for exciting ag-themed STEAM learning from Illinois Agriculture in the Classroom.

*Presenter: Chris Wyant*

**Room: 244**

**Audience: General Sci., Grades 9-12**

**Environmental Justice in the Science Classroom**

Marginalized communities are disproportionately affected by unsafe exposure to harmful environmental conditions. There is hope. Community involvement, policy changes, and education, move us towards a world where environmental justice is achieved. Education begins in your science classroom.

*Presenter: Alyssa Weisenstein*

**10:30 - 12:20 (2 hours)**

**Room: 114**

**Audience: Biology, Grades 9-12**

**Evolution-5 Lesson sets developed by NCSE**

In this session teachers will get introduced to the 5 free evolution lesson sets developed by the National Center for Science Education. The focus of all of these lessons is to provide choice for both teacher and student to explore evolutionary theory. Lessons are accessible and easy to navigate.

*Presenter: Jeff Grant*

**10:30 - 12:20 (2 hours)**

**Room: 118**

**Audience: STEM, Grades k-12**

**Building an Inquiry-based STEAM Class & Curriculum**

Participants will gain tips for working cross-curricularly in developing STEAM curriculum and a step by step methodology for creating their own hybrid STEAM inquiry activities. Several ways that the methodology can take shape will also be discussed, regardless of class setting and implementation.

*Presenter: Annamarie Vandrevalla*

**Room: 163**

**Audience: General Sci., Grades k-12**

**The Resources You Didn't Know You Had**

Many teachers struggle to find supplemental materials to make science and especially engineering topics come to life and keep the students interested. There are a number of low-cost and even no-cost sources for enrichment materials that can keep even the most bored students intent on the material.

*Presenter: Connie Kelly*

**Room: 166**

**Audience: General Sci., Grades k-12**

**Not A Buzz Word - Culturally Responsive Teaching**

Culturally responsive teaching isn't just a buzz-word. It is a research-based pedagogy that connects students' learning to their culture. In this session, we will discuss culturally responsive teaching and how it can be used by science instructors to help their students succeed.

*Presenter: Anthony Little*



10:30 -12:20 (2 Hours)

11:30 - 12:20

**Room 155:**

**Audience: Grades k-12**

**Beyond the Anchoring Phenomena Routine**

In the Chicago NSTA session, participants explored the Anchoring Phenomenon routine to kick off investigations in a unit driven by student questions. In this follow-up session, participants will explore four other routines that help elicit, deepen, make progress on, and answer student questions.

*Presenter: Nicole Vick, Dawn Novak and Michael Novak*

**Room: 236**

**Audience: STEM, Grades 9-12**

**BioInspiration: Let Nature Be Your Guide**

Bioinspiration lets your students combine biology and engineering to unleash their creativity and solve real world problems. Come learn about current research from the University of Illinois and classroom projects you can use tomorrow. You will be amazed with what your students come up with!

*Presenter: Aubrey Mikos*

11:30 - 12:20

**Room: 103**

**Audience: Biology, Grades 9-12**

**A BioInteractive storyline that makes kids cry?**

This exemplary storyline leverages a sequenced playlist of HHMI BioInteractive resources that engage students with stories of real science, guided investigation, and data analysis. Topics include: biodiversity, biomes, conservation, and ecological pyramids. One story is known to induce happy tears.

*Presenter: Steven Rogg*

**Room: 123**

**Audience: General Sci., Grades 6-8**

**What Evidence Do You Have To Support Your Claim?**

At BrainPop Science we believe all learners can and should learn complex science concepts and practices. Our goal is to support students as they learn to be able to construct scientific explanations based on evidence gathered from a variety of interactive resources.

*Presenter: Tim Powers*

**Room: 239**

**Audience: General Sci., Grades k-12**

**Designing and Using Three-Dimensional Assessment in the Classroom**

During this session participants will learn practical strategies for developing, implementing, and differentiating three-dimensional assessments. Participants will develop an understanding of three-dimensional assessments by engaging in activities to support discussion around how and why three-dimensional assessment tasks and instructional tasks share many similarities. We will discuss how a three-dimensional assessment task attends to access and equity using differentiation strategies already embedded into the task. Participants will also gain experience evaluating student learning across the three dimensions using authentic student work samples. We will also use these examples to discuss strategies and tips for developing success criteria for grading that allows for interrater reliability.

*Presenters: Kristin Rademaker, Dina Lemmer*

11:30 -12:20

**Room: 244**

**Audience: General Sci., Grades k-12**

### **Engaging Teachers in the Development of the Illinois Science Assessment**

This session will allow participants insight into the process of developing the Illinois Science Assessment, the large-scale state assessment used to gauge student mastery of science in grades five, eight, and eleven. This multi-year process resulted in the creation of multiple professional learning opportunities for participants around the NGSS and assessment design. Assessment development also included an extensive feedback process which allows developers to reflect and revise assessment item clusters.

*Presenters: Angela Box and Amanda Weidhuner*

1:30 - 2:20

**Room: 103**

**Audience: STEM, Grades k-12**

### **Effective Intervention Strategies for Students**

Let's explore several intervention strategies to help struggling students in STEM, and let's move beyond differentiation and scaffolding. Learn how to modify our traditional outreach to connect with students so that they gain greater understanding.

*Presenter: Susan Arnette*

**Room: 123**

**Audience: General Sci., Grades 9-12**

### **How to Design a Flipped Science Classroom**

This session will overview the process of designing a flipped science curriculum, with the ultimate goal being to maximize class time for activities, experiments, and student-centered instruction by minimizing in-class lecturing.

*Presenter: Chris Cunnings*

**Room: 155**

**Audience: General Sci., Grades 6-8**

### **Examples of Hybrid Inquiry Activities**

Ready-made Science & STEAM inquiry-based lesson examples will be shared for participant's implementation and modification. We will also work together in-session to develop individual teacher inquiry lesson plan ideas by the end of the session. Give your students voice and choice in how they learn!

*Presenter: Annamarie Vandrevalla*

12:30 -1:05

**Lunch**

**Room 203**

1:05 - 1:20

**General Business**

**Meeting**

**Room 203**



1:30 -2:20

**Room: 239**

**Audience: STEM, Grades 9-12**

**AgriScience & Ag Biology Courses with Funding.**

If your high school or junior high does not offer agriscience courses, then this workshop is for you. Start up schools receive \$5000 for adding two courses. Learn how to add an agriscience endorsement to your teaching license. Teacher grants add \$15,000 plus to salary as an extended contract.

*Presenter: Dean Dittmar*

**Room: 166**

**Audience: General Sci., Grades k-12**

**Developing Teacher Leaders**

Your voice matters! As a teacher, you are an expert on educational issues and your voice is needed when decisions are made that affect your classroom. In this session, you will learn about pathway to get involved in educational policy.

*Presenters: Maggie Moore, Nicole Vick*

1:30 - 3:20 (2 Hours)

**Room: 114**

**Exploring Forms of Energy & Energy Transformations**

Explore motion, sound, thermal, radiant, electrical & chemical energy through six stations to better teach energy forms and transformations with fun, hands-on scientific investigation and reasoning lessons.

*Presenters: Sharon Bird, Cori Nelson*

**Room: 118**

**Audience: STEM, Grades k-12**

**Returning to the Moon: NASA's Artemis Missions**

Did you know that we're going back to the Moon? Explore NASA's Artemis Missions to the Moon and Mars and discover inquiry/engineering activities to integrate into your classroom. Come take advantage of NASA's free STEM resources and encourage ALL your students to reach for the stars!

*Presenter: LaTina Taylor*

**Room: 163**

**Audience: STEM, Grades 9-12**

**Engaging ALL Students in the Science of Food**

Obtaining food to meet our energy and matter needs is a basic requirement of humans. We will explore how to use elements of the NGSS and the Framework to engage students in making sense of phenomena and problems related to food.

*Presenter: Chris Embry Mohr*

**1:30 -3:20 (2 Hours)**

**2:30 - 3:20**

**Room: 236**

**Audience: Biology, Grades 9-12**

**Illinois Biology Storylines: Immersion & Panel Discussion**

The Illinois Biology Storylines provide biology teachers with a fully-aligned NGSS curriculum that includes authentic data and real-world phenomena. Participants will be immersed in select activities as well as pose questions to the storyline authors and Dr. Jean Dubach, wildlife geneticist who provided some of the fascinating data used in these activities.

*Presenters: Jean Dubach, Jason Crean, Kristin Rademaker*

**2:30 - 3:20**

**Room: 103**

**Audience: STEM, Grades 6-8**

**Read Share Apply**

Differentiate the work and improve students' weak areas. Students will learn to find essential information, science facts, and vocabulary, while working on presentation skills and positive group dynamics.

*Presenter: Keith Campbell*

**Room: 123**

**Audience: Earth/Space, Grades k-12**

**Illinois Teachers Create Sustainability Storylines**

Learn about the work of 20 Illinois K12 teachers who collaborated to create six NGSS style storylines that address regional sustainability and resilience issues. The storylines are inspired by critical zone science. The critical zone is Earth's thin layer from solid rock to the tops of trees.

*Presenters: Cheryl Manning, Nicole LaDue*

**Room: 155**

**Audience: STEM, Grades 9-12**

**Mentoring the High School Research Student**

There are avenues for motivated students to hone their academic talents while still in high school but many of those opportunities can be specific and scripted. This presentation will highlight the challenges, successes and benefits of mentoring research students at the high school level.

*Presenters: Michelle Sachtleben, Scott Howard*

**Room: 239**

**Audience: General Sci., Grades 9-12**

**The Science of Food and Fuel: Nourish the Future**

Inspiring educators to foster critical thinking, to connect students to modern agriscience, and to provide sound science-based resources. Using agriculture hands-on activities to engage with STEM concepts impacting student lives and careers. Free set of 100 plant ID cards to all attending.

*Presenter: Lucas Allen*

**Room: 166**

**Audience: Biology, Grades 9-12**

**Biology Storylines for all Learners**

Explore strategies to modify storylines that increase engagement. Testimonies from biology and special education teachers who have implemented storylines to bring NGSS and equity to students with learning needs.

*Presenters: Lisa Pavic, Madeline Munar, Jesse Sisler, Lauren Baker*

2:30 - 3:20

**Room: 244**

**Audience: General Sci., Grades 3-5**

**NGSS-Aligned Formative Elementary Assessments**

BYO Device to this hands-on workshop for the Next Generation Science Assessment (NGSA) project from UIC and UChicago. Explore free, high-quality, multidimensional tasks, consider how to use them for formative assessment in your elementary classrooms, and view online resources in a virtual learning community for science teachers.

*Presenter: Carla Strickland*

3:30

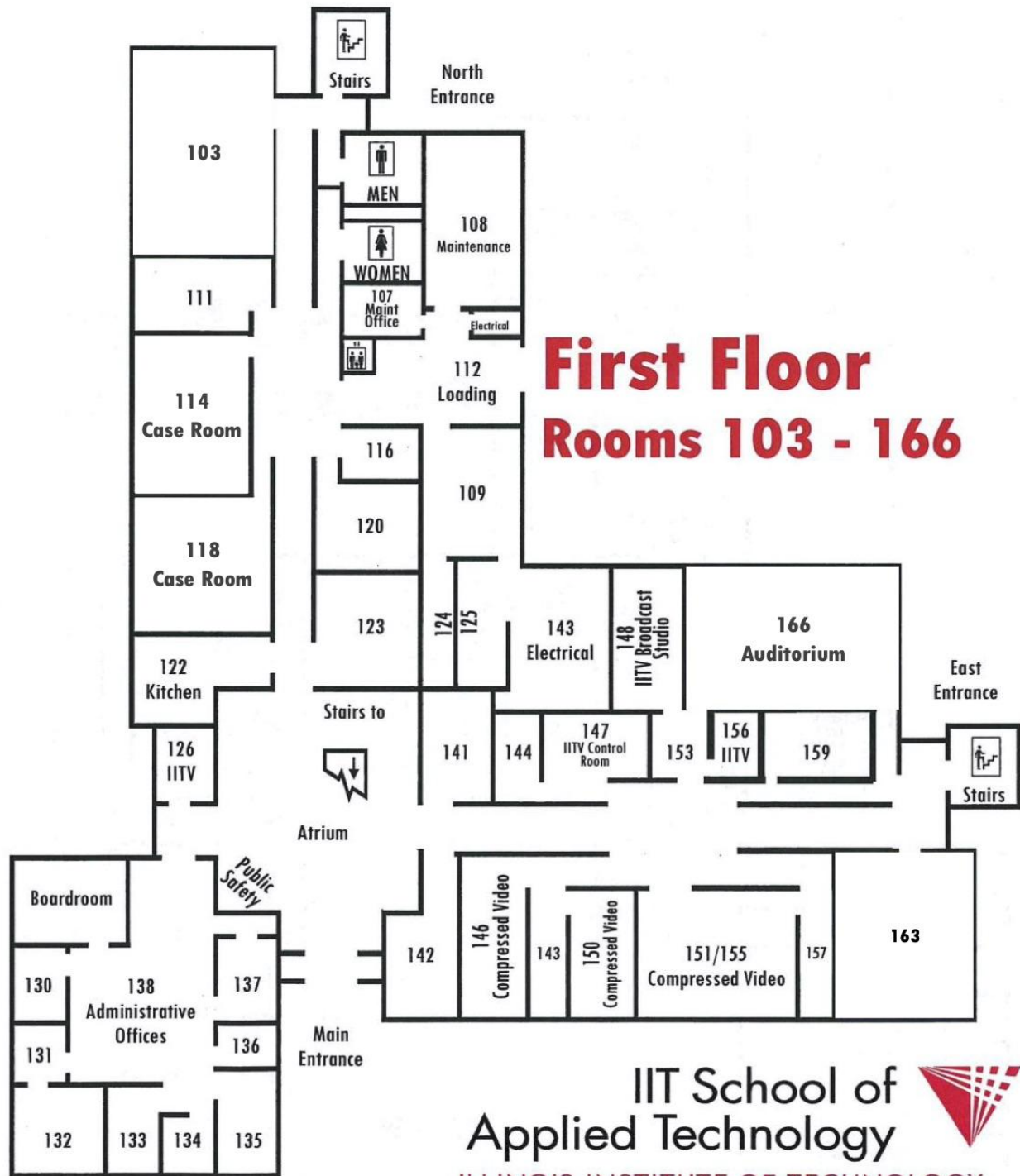
**Raffle in the Atrium**

## 2022 Exhibitors

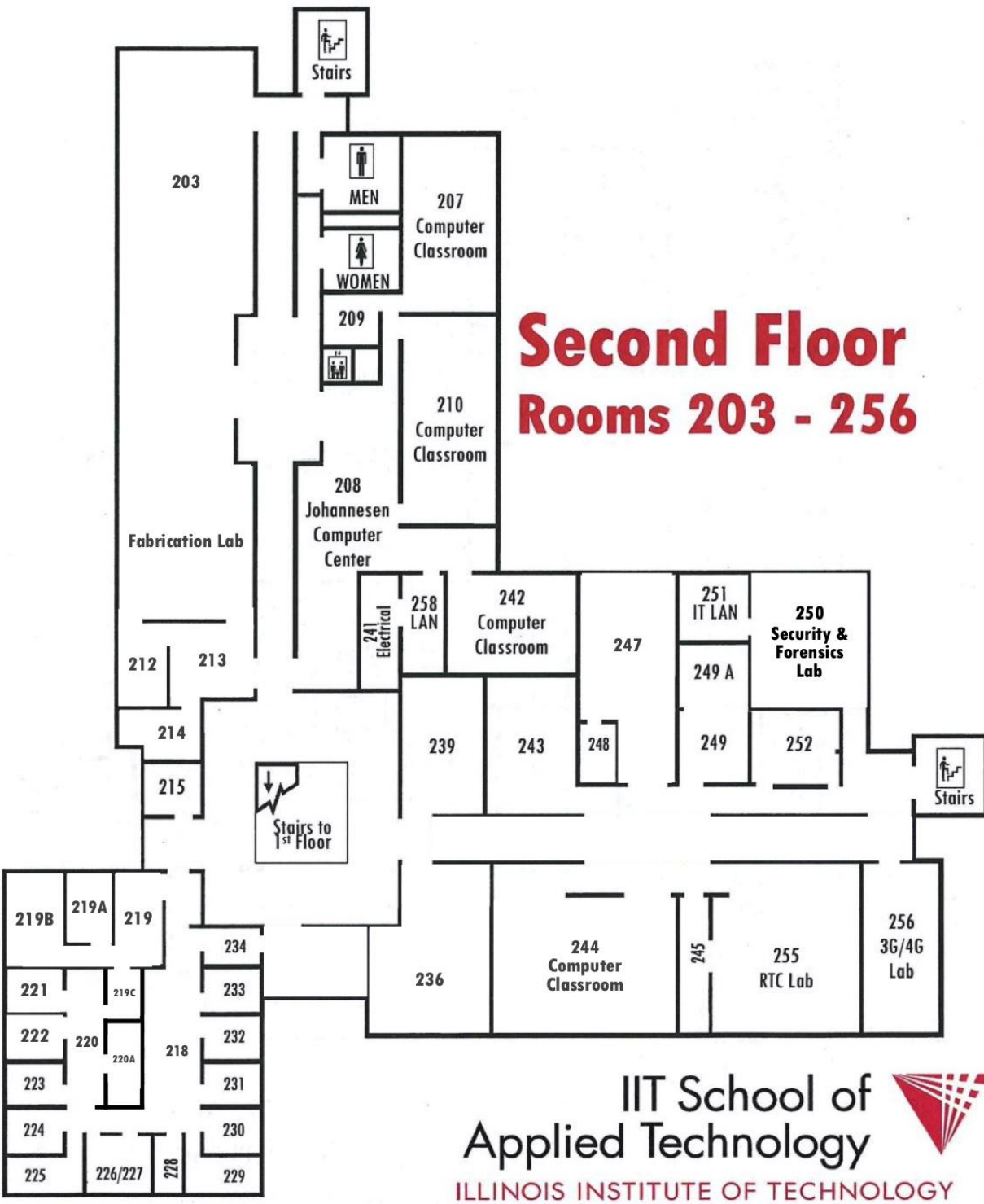
BIOZONE Corporation  
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Facilitating Coordination in Agricultural Education  
Fuse/Northwestern University  
Illinois EPA  
MicroTech Microscope Sales & Service  
Millikin University  
National Anti-Vivisection Society  
National Energy Education Development Project  
National Geographic Learning | Cengage

Savvas Learning Company  
School Specialty Curriculum  
Severe Weather Information  
Skill Struck, Inc  
STEMscopes  
Tinkrworks  
Tower Garden- Vertical Hydroponics-  
Educator and Distributor  
University of Illinois at Urbana Champaign  
University of Illinois at Urbana Champaign  
/Illinois Space Grant Consortium  
Ward's Science

First Floor



Second Floor



## Second Floor Rooms 203 - 256