

**STEM Pathways and Programs of
Study in the Land of Lincoln:
A High School Companion to the
*Illinois Programs of Study Guide***

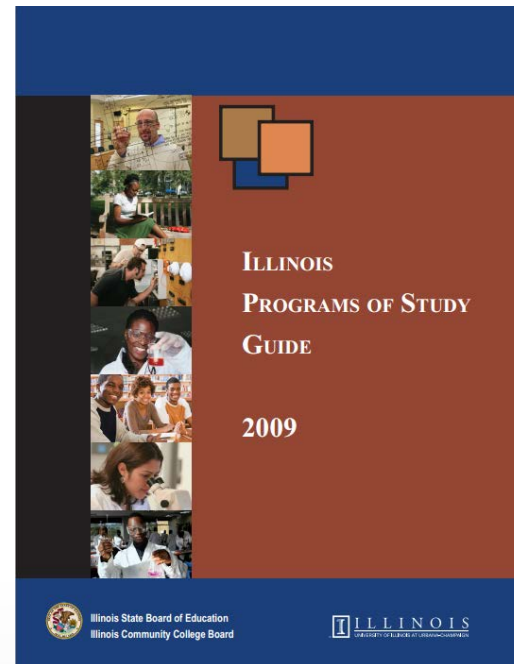
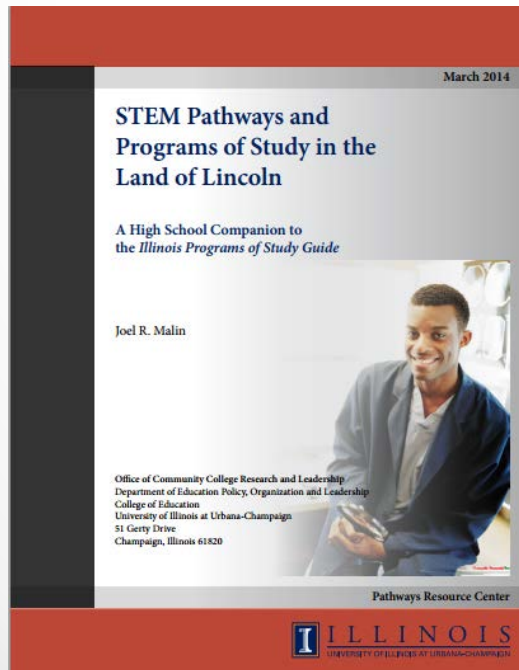


Joe Malin
Kay Smoot
May 19, 2014

Background

- In March 2014, Pathways Resource Center released a new resource, *STEM Pathways and Programs of Study in the Land of Lincoln*

This resource functions as a **high school companion** to the *Illinois Programs of Study Guide* (2009), written by our colleagues at the Office of Community College Research and Leadership (OCCRL)

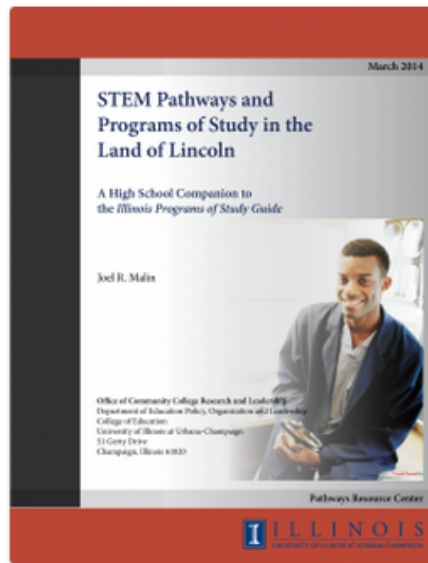


Background (continued)

- These resources, and several others, are available electronically from the Pathways Resource Center website (pathways.illinois.edu)

pathways.illinois.edu

Program of Study Development and Implementation



Pathways Resource Center has produced a resource for educators, the [STEM Pathways and Programs of Study in the Land of Lincoln: A High School Companion to the Illinois Programs of Study Guide](#). This companion document builds upon the Office of Community College Research and Leadership's [Illinois Programs of Study Guide](#) and is organized around its six guiding principles (and associated design elements) for developing and implementing robust programs of study. It also integrates recent findings and includes a set of suggested implementation steps and phases. It is attentive to the Illinois context and focused primarily from the vantage point of the secondary educator and leader. It is aimed to enhance the effectiveness of educators and partners who wish to develop or improve STEM programs of study and

associated career pathways for students.

Context

- State and federal policy focus
- The “educational pipeline” problem
- Heightened significance re: STEM fields
- Complex, multi-faceted work

Purpose

This supplement is designed to share the *Illinois Program of Study Guide's* (2009) guiding principles and design elements. It is aimed to assist school/district leaders, faculty, and partners who wish to develop and implement a program of study. As such, it incorporates recent findings and includes introductions to a variety of resources that may be beneficial.

Goals

- Provide a user-friendly **guide** to program of study development and implementation,
- Provide a detailed **process** and suggested set of steps that can be followed,
- Refer users to helpful **resources** relating to the topics covered, and
- Assist teachers and administrators as they **develop and/or improve programs of study**

The Six Guiding Principles (Taylor et al., 2009)

- **Principle 1: Leadership, Organization, and Support**

Programs of Study are developed, supported, and led with guidance from collaborative partners.

- **Principle 2: Access, Equity, and Opportunity**

Each and every student has access to educational opportunities that enable their success.

- **Principle 3: Alignment and Transition**

Education and training providers, with input from business and industry, enhance alignment that facilitates student preparation and transition through the educational pipeline.

- **Principle 4: Enhanced Curriculum and Instruction**

Curriculum and pedagogy involve rigorous and relevant instruction that enhances learning and enables students to attain academic and technical standards and credentials.

- **Principle 5: Professional Preparation and Development**

Comprehensive and continuous professional development that impacts teaching and learning is delivered to enhance the recruitment, preparation and retention of qualified instructional and administrative staff.

- **Principle 6: Program Improvement and Accountability**

Data are collected, shared and utilized to improve outcomes and demonstrate accountability.

Organization of Material

For each guiding principle, we include:

- A brief overview
- A listing of associated design elements
- A section designed to present interconnections between the guiding principle and other materials and findings
- A vignette depicting carryout of the principle “in practice,” and questions for consideration based on the vignette

Note: The *Illinois Programs of Study Guide* contains more detailed information, particularly with respect to the design elements.

Principle statement

Programs of study are developed, supported, and led with guidance from collaborative partners.



Overview:

- Program of Study development/implementation is *complex*; shared leadership is requisite
- Formal *and* informal leaders are essential; in mature sites, leadership often comes from outside the organization as well
- Solid, continual, and shared leadership is a must

Key Points:

- Cross-disciplinary planning time
- Use of facilitative course scheduling methods
- Strong partnerships
- Teacher champions
- Centrality of guidance counselors

**See design elements for greater detail*

Principle statement

Each and every student has access to equitable educational opportunities and services that enable their success.



Principle Overview:

- Ultimately, educators are responsible for meeting the needs of *all* students
- We must therefore look carefully at our practices and structures in terms of their impacts on all students
- If issues are found, a unique combination of courage, resilience, and creativity will be required to address them!

Key Considerations:

- Regular review and consideration of disaggregated enrollment and student success data
- Individualized Learning Plan (ILP) processes
- Career and Technical Student Organizations (CTSOs)
- Professional development and integrated, rigorous curricula: academics and CTE and applied

**See design elements for greater detail*

Principle statement

Education and training providers, with input from business and industry, enhance alignment that facilitates student preparation and transition through the educational pipeline.



Principle Overview:

- Successful transition between high school and postsecondary or high school and career is paramount
 - Programs of study are intended to strengthen these connections

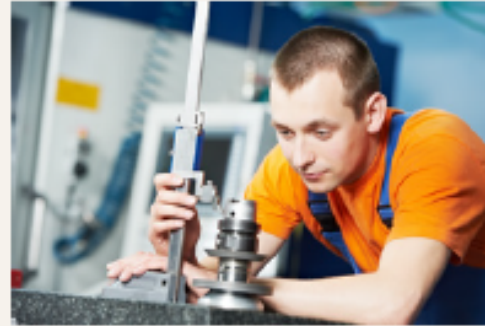
Key Considerations:

- Continuous partnership and articulation within/across systems are fundamental
 - Advisory Committees as a mechanism
- Articulation agreements and dual credit coursework
- Stackable credentials
- Learning Exchanges are key resources!
- *Curriculum Alignment Module* (PRC Resource)

**See design elements for greater detail*

Principle 4: Enhanced Curriculum and Instruction**Principle statement**

Curriculum and pedagogy involve rigorous and relevant instruction that enhances learning and enables students to attain academic and technical standards and credentials.



4

Principle Overview:

- Curricular and instructional strategies are the focus here – defined broadly
 - Aligned and integrated orientation and training-level courses
 - Facilitated work-based learning opportunities
 - Rigorous academic and technical skills preparation for students

Key Considerations:

- Time to plan, adjust, and align programming
- Attraction and retention of excellent teachers
 - Resources to facilitate their continued growth
- Curriculum mapping and *Understanding by Design*

**See design elements for greater detail*

Principle 5: Professional Preparation and Development

Principle statement

Comprehensive and continuous professional development that impacts teaching and learning is delivered to enhance the recruitment, preparation and retention of qualified instructional and administrative staff.



5

Principle Overview:

- Development of educators' skill sets
- Coherent, sustained, meaningful growth opportunities
- Professional development offers an opportunity to develop a common vision and mission, and to build lessons, assessments, and structures that support them

Key Considerations:

- Tailor to current strengths needs, and interests;
- Adjust over time

**See design elements for greater detail*

Principle 6: Program Improvement and Accountability

Principle statement

Data are collected, shared, and utilized to improve outcomes and demonstrate accountability.



6

Principle Overview:

- Even the best designed programs require review and modification over time
- Some modifications may be needed for a program to make its required impact

Key Considerations:

- Multiple models are available for teams to choose from
- PRC's website includes links to several such models
- Data sharing agreements across sites

**See design elements for greater detail*

Phases/Steps

- Program of study development and implementation is not always a perfectly linear process, but these steps/phases may still be useful for planning purposes.
- Two state guides (Wisconsin and Arizona) include suggested steps or phases to program of study development and implementation.

Phases/Steps

Wisconsin (5 Phases)	Arizona (7 Steps)
1. Laying the Groundwork	1. Establish Partnerships
2. Assembling a Team	2. Build the POS Foundation
3. Designing and Building a POS	3. Design the POS
4. Implementing the POS	4. Develop Articulation/Dual Enrollments
5. Evaluating and Refining the POS	5. Implement the POS
	6. Assessments
	7. Evaluating/Improving the Programs of Study

Please see the full guides for more detailed information. They are linked from our *Pathways and Programs of Study in the Land of Lincoln* guide.

Supporting POS Implementation

- Five PRC coaches continue to work with the *Race to the Top* districts. Coaches encourage districts to use resources provided by STEM Learning Exchanges.
- Resource supports continue to be developed, for use by educators in all institutions.
- Please provide us feedback so we can assist in your success.

Upcoming Events

- **June 5, 9:00 – 10:00 am** Webinar: *STEM Programs of Study: Health Science Resources*
- **June 18, 10:00 am – 4:00 pm** Workshop: *STEM Programs of Study—Growing the Future Workforce* (Hilton Garden Inn, 1501 S. Neil Street, Champaign, IL)
- **June 19, 8:30 am – 3:30 pm** Administrator Academy: *Getting the Grant: Sustainability and Growing your STEM Programs Through Grant Funding* (I Hotel, 1900 S. First Street, Champaign, IL)

Register at: http://pathways.illinois.edu/?page_id=77

Contact Information

Joe Malin, Curriculum Specialist (jrmalin2@illinois.edu)

Kay Smoot, PRC Coach (ksmoot52@illinois.edu)

Pathways Resource Center

51 Gerty Drive

University of Illinois

Champaign, IL 61820

217-300-2025

pathways.illinois.edu

