

Effective Practices for Physics Programs (EP3) Report

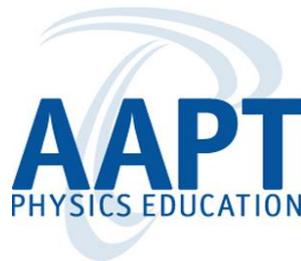
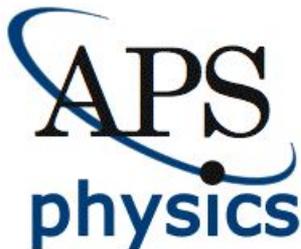
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Any opinions, findings, and conclusions or recommendations expressed in this material are those of
the author(s) and do not necessarily reflect the views of the National Science Foundation.



Effective Practices for Physics Programs: The EP3 Guide

APS, in collaboration with AAPT, is creating a guide to help physics departments improve, review and assess their programs ... and to help them meet challenges they may face

The EP3 Project is bringing together research and information about practices for building successful and effective physics programs from experts across the American physics community.

Co-Chair: David Craig, Oregon State University

Co-Chair: Michael Jackson, Millersville University of Pennsylvania

- Noah Finkelstein, University of Colorado Boulder
- Courtney Lannert, Smith College and UMass Amherst
- Ramon Lopez, University of Texas at Arlington
- Willie Rockward, Morgan State University
- Gay Stewart, West Virginia University
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AAPT Liaison: Bob Hilborn **External Evaluator:** Stephanie Chasteen

Research: C. Turpen, J. Corbo **Community Engagement:** Joel Corbo

Who is it for?

- **Physics department chairs**
- Program leaders
- Programs undergoing a self-study and being reviewed
- Program reviewers
- Departments & faculty facing program challenges or interested in improving their programs
- Anyone in physics involved with student learning assessment
- Administrative leaders

Help department chairs (& other program leaders)

- Bring together known literature on topics
- Collect practices recognized by the community as effective when there is insufficient evidence-based literature
- Collect information for departments to use in advocating for resources to improve their program
- Encourage discussions in departments on continuous improvement of physics programs using evidence
- External program assessment / departmental review
- Improve usefulness of assessment
- Engage PER community on departmental needs

Chapters:

- Introduction, how to navigate and use the guide
- How to be an Effective Chair
- Program Review: Preparing for a Departmental Review
- Program Review: Advice to External Consultants
- Departmental Culture of Continuous Self-Improvement
- Assessment of Student Learning
- How to create and sustain effective changes in your department or program
- **Effective Practices** (~25 “sections”)
- **Ancillary material:** Creating foundational documents; examples of student learning goals and program learning goals; assessment instruments; additional resources

Students

- *Recruiting (in 1st release)*
- *Retention*
- *Advising and Mentoring of Students*
- *Career preparation*
- Internships (to be included in 2nd release)
- *Undergraduate research*

Curriculum

- *Implementing research-based instructional practices in your program (overarching)*
- *Introductory courses for physical science and engineering majors*
- Introductory courses for life sciences majors
- Introductory courses for Non-STEM majors
- *Upper-level physics courses*
- Communication skills
- *Laboratory / experimental skills*

- *Computational skills*
- Culminating Integrative experiences
- www.ep3guide.org
- Online education

(4)

(10)

(2)

(0)

(3)

(1)

To date: approx. 80 contributors submitted materials with another approx. 16 pending



For each section there will be several individuals (including yourself) contributing content

The task force and editorial director will then synthesize into one cohesive document.

We may have some additional questions for you. After internal vetting you will have a chance to see and comment on the synthesized section.

Each section will be sent for expert review to at least 4 individuals.

To see an example of a final section the Teacher Preparation can be found here: <http://apps3.aps.org/bpupp/>

Is:

- Collection of community knowledge and evidence-based practices
- Authored, reviewed, approved by physics community (>200!)
- *Living* document (not static), with stewardship by an Editorial Board
- Primarily online
- Ethics and diversity included throughout
- Effort to encourage evidence-based pedagogy
- Transform mandatory assessment into useful exercise
- Suggestions on how to improve all aspects of a program
- Opportunity to extend reach of education research

What the EP3 Guide Is & Isn't

Is:

- **Key:** flexible, not prescriptive; mindful of local contexts
- **Tool to help departments understand who they are and what they want to be, and then provide community-based knowledge and information to help them achieve this**

Is NOT:

- Accreditation or program certification
- Mandate to conform
- A checklist of required actions
- Every possible idea for what to do (e.g., the 'kitchen sink')
- At the smallest level of detail to assist with implementation
- **Finished (yet)... Join our mailing list at ep3guide.org**

Project Goals: *To help strengthen and improve physics departments and programs nationwide by building on research and community knowledge and practice*

- i. Encourage and support adoption of the **effective practices**
- ii. Encourage and support development of a **culture of continuous self-reflection and improvement** in physics departments
- iii. Support departments in achieving specific goals and objectives by **employing the knowledge, practices, and underlying philosophy** of the EP3 Guide
- iv. **Disseminate** the physics community knowledge and expertise contained in the EP3 Guide
 - a. Conference panels and presentations;
 - b. Workshops at APS, AAPT, other conferences, and specialized meetings;
 - c. Online community;
 - d. EP3 Departmental Action Leadership Institutes (DALIs).

Departmental Action Leadership Institutes (DALIs)

Who are they for?

DALIs are direct, intensive support for departments facing a challenge or opportunity or wishing to make a major change by training department members to lead change efforts

For example:

- Increase enrollment and retention
- Develop shared mission, vision and plan for department's future
- Implement major recommendations of a program review
- Implement evidence-based instruction
- Improve department climate
- Develop & implement program-level student learning assessment plan

Learn more and apply for a DALI at ep3guide.org/dali.cfm

Departmental Action Leadership Institutes (DALIs)

What is a DALI?

- Participating departments will create a “departmental action team” (DAT) — a local team charged with shepherding the change effort
 - The DALI trains two change leaders to lead the DATs to assess and reflect on the situations their departments face, engage in the steps necessary for creating sustained change, and work with their DATs to achieve departmental goals
-
- ✓ 3-5 participating departments
 - ✓ 2 representatives from each department who will be “change leaders” in their home dept.
 - ✓ 2 EP3 facilitators (Joel Corbo and David Craig, initially)
 - ✓ In-person kickoff workshop
 - ✓ Bi-weekly video conferences
 - ✓ One year minimum commitment

Learn more at
ep3guide.org/dali.cfm

3:25 – 3:55 pm AND 4:10 – 4:40 EST

EP3 Breakout Sessions

Presenters will briefly outline an example section with tips on how to read/use the section content. Participants will have the opportunity to review the example content that has been developed followed by a Q&A session.

- *Program Review*: Neal Abraham and Ted Hodapp
- *Recruiting of Undergraduate Physics Majors*: Courtney Lannert and G. R. Sudhakaran
- *Career Preparation*: Kathryn Svinarich and Larry Woolf
- *Teacher Preparation*: Gay Stewart and Bob Hilborn
- *Advising and Mentoring of Students*: Mike Jackson and David Craig

Learn more and apply for a *Departmental Action Leadership Institute (DALI)* at ***ep3guide.org/dali.cfm***

If you have not already done so, please join our mailing list at **ep3guide.org** or use the QR code



Also, if you have not already done so, please take the department chair survey – the last e-mail was on **June 9**, from Ted Hodapp, APS (communications@aps.org), subject line "**Departmental practices survey reminder.**"

Thank you for those who have already done so!

Co-chairs:

- David Craig (craigda@oregonstate.edu)
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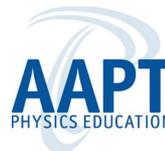
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Departmental Action Leadership Institutes (DALIs)

How does my department join a DALI?

- Apply at ep3guide.org
- \$5200 per department + travel to in-person workshop
- Have submitted proposal to fund scholarships for departments that may not be able to pay
- First in-person kickoff workshop planned for January 2021

Learn more and apply for a DALI at ep3guide.org/dali.cfm