COLLEGE OF SCIENCE
STRATEGIC PLANNING
2015-16:

STRATEGIC PLANNING
WORKING GROUPS
( SPWGs)
WORKING GROUP PARTICIPANTS

Working group members:

Strategic planning working group members are drawn from across the Purdue community. Their names and affiliations are listed in the individual working group charges.

Strategic Planning Guidance Group:

- Fabrice Baudoin (Professor, Department of Mathematics)
- Gabor Csathy (Associate Professor, Department of Physics and Astronomy)
- Tammy Emilson (Director of Financial Affairs, College of Science)
- Ananth Grama (Professor, Department of Computer Science)
- Andy Freed (Professor, Department of Earth, Atmospheric and Planetary Sciences)
- Chris Hrycyna (Professor, Department of Chemistry)
- Kendal Kosta-Mikel (Strategic Data Manager, College of Science)
- Andrea Spahn-McGraw (Director of Advancement, College of Science)
- Laura Starr (Director of Experiential Learning and Student Success, College of Science)
- Elizabeth (“BJ”) Taparowsky (Associate Dean for Research and Graduate Education, College of Science)
- Jun Xie (Professor, Department of Statistics)
- Daoguo (“Joe”) Zhao (Professor, Department of Biological Sciences)

Resource administrators:

- George McCabe (Associate Dean for Academic Affairs, College of Science)
- Dennis Minchella (Associate Dean for Undergraduate Education, College of Science)
- Jeffrey Roberts (Frederick L. Hovde Dean, College of Science)
- Elizabeth (“BJ”) Taparowsky (Associate Dean for Research and Graduate Education, College of Science)
- Tammy Emilson (Director of Financial Affairs, College of Science)
WORKING GROUP TOPICS

WORKING GROUP A: FOUNDATIONAL SCIENCE COURSES
WORKING GROUP B: SCIENCE AS AN UNDERGRADUATE DESTINATION
WORKING GROUP C: THE GRADUATE STUDENT AND POSTDOCTORAL EXPERIENCE
WORKING GROUP D: FACULTY HIRING WORKING GROUP
WORKING GROUP E: EMERGING RESEARCH OPPORTUNITIES
WORKING GROUP F: REPUTATIONAL STEWARDSHIP
WORKING GROUP G: GLOBAL STRATEGIES
WORKING GROUP H: ENGAGEMENT
WORKING GROUP I: SCIENCE AS A BEST PLACE TO WORK
VISION AND MISSION STATEMENTS

Draft vision statement:
Transforming minds, advancing knowledge, and making a better world by being a preeminent leader for fundamental discoveries in science and mathematics through research, education, and outreach.

Draft mission statement:
To advance the scholarship and application of science and mathematics for the university and global community through discovery, learning, and engagement by:

- Promoting a creative, diverse, and active faculty, staff, and students that works together to expand the frontiers of scientific discovery and innovation.
- Serving the undergraduate and graduate students throughout the university with foundational instruction in science and mathematics that motivates their intellectual engagement, broadens their vision, and provides critical thinking skills to help them thrive and succeed in a rapidly changing, competitive, multicultural world.
- Engaging public and private sector partnerships across local and global communities to enhance scientific competence, support, and the appreciation for the importance of learning and discovery in science and mathematics.
WORKING GROUP A: FOUNDATIONAL SCIENCE COURSES

**Team members:** Johnny Brown; Professor, Department of Mathematics
Stacey Dunderman; Math Advisor, College of Science
Ellen Gundlach; Education Specialist, Continuing Lecturer, Department of Statistics
Andy Hirsch; Professor, Department of Physics and Astronomy
Holly Mason; Senior Associate Dean, College of Pharmacy
Marcy Towns; Professor, Department of Chemistry
Tom Walter; Continuing Lecturer, Biological Sciences
Jun Xie; Professor, Department of Statistics (SPGG member)

**Charge:** The College of Science is a partner with every other college at Purdue in the success of their students, in no small part because of the tremendous number of student credit hours delivered through foundational Science courses. Working Group A will make recommendations about how this set of courses could be an even more powerful engine of Purdue student success. Working Group A should consider the following questions as it goes about its work:

- *How might the College do a better job of understanding and meeting the different needs and expectations of other Purdue colleges whose students take foundational Science courses?*
- *What is the appropriate mix of on-line, traditional, and mixed format courses offerings?*
- *What barriers exist to innovation in conceiving or delivering foundational Science instruction, and how might the barriers be lowered?*
- *Do current foundational courses adequately serve the needs of under-represented minority, first-generation, and underserved beginner and sophomore students?*

Dennis Minchella, Associate Dean for Undergraduate Education, is the resource administrator to this working group.

**Work product:** Working group A should begin its work by discussing the broad context of its charge and formulating, on the basis of those discussions, other pertinent and relevant questions. Its preliminary report, due on Friday, Dec. 18, should provide answers to the questions posed, as well as a concise set of preliminary recommendations for possible adoption by the strategic plan.
WORKING GROUP B: SCIENCE AS AN UNDERGRADUATE DESTINATION

Team members: Henry Chang; Associate Professor, Department of Biological Sciences  
John Fisher; Director of Recruiting, College of Science  
Molly Gilbert; Math / Lower Division Physics Advisor, College of Science  
Edray Goins; Associate Professor, Department of Mathematics  
Darryl Granger; Professor, Department of Earth, Atmospheric, and Planetary Sciences  
Christine Hrycyna; Professor, Department of Chemistry (SPGG member)  
Mark Ward; Associate Professor, Department of Statistics

Charge: National trends are very favorable for the College of Science in the sense that the number of science majors (and prospective science majors) is on an upswing. Working Group B will make recommendations about how the College of Science can improve its ability to recruit and retain undergraduate Science students. Working Group B should consider the following questions as it goes about its work:

- How can we provide the best overall experience to our undergraduate majors?
- How could we be even prouder of the experiential learning opportunities we provide to our students?
- How can we better ensure an appropriate distribution of undergraduate majors across the College’s seven academic departments?
- How can we do a better job of anticipating student needs and of making sure that we meet them?
- Does the College adequately serve the needs of transfer students in its undergraduate programs?
- How well do on-line and hybrid courses meet our students’ needs?
- How can we better serve the needs of under-represented minority, first-generation, and underserved students?

Dennis Minchella, Associate Dean for Undergraduate Education, is the resource administrator to this working group.

Work product: Working group B should begin its work by discussing the broad context of its charge and formulating, on the basis of those discussions, other pertinent and relevant questions. Its preliminary report, due on Friday, Dec. 18, should provide answers to the questions posed, as well as a concise set of preliminary recommendations for possible adoption by the strategic plan.
WORKING GROUP C: THE GRADUATE STUDENT AND POSTDOCTORAL EXPERIENCE

Team members:  Gabor Csathy; Professor, Department of Physics and Astronomy (SPGG member)
Donna Fekete; Professor, Department of Biological Sciences
David Goldberg; Professor, Department of Mathematics
Hilkka Kenttämaa; Professor, Department of Chemistry
Susanne Hambrusch; Professor, Department of Computer Science
Linda Mason; Associate Dean, Graduate School
Maureen McCann; Professor, Department of Biological Sciences

Charge:  Graduate students and postdoctoral associates are essential to the College’s research mission. Although graduate programs in Science are generally quite strong, a number of issues merit attention. Some programs have difficulty attracting sufficient numbers of well-qualified students. Increasing numbers of graduate students are gravitating toward interdisciplinary research programs, or entering graduate programs in disciplines different from what they studied as undergraduates. Also, granting agencies, potential future employers (especially non-academic employers), and the students themselves are asking that universities more forcefully address issues related to mentoring and professional preparation of graduate students and postdoctoral associates. Finally, in some disciplines, the MS is an increasingly attractive degree option. Working Group D should consider the following questions as it goes about its work:

- What activities and programs related to graduate and postdoctoral education should be supported at the College level, and which should be left to the academic departments?
- How effective is the College at recruiting and retaining graduate students and postdoctoral associates, especially among women and under-represented groups?
- How well are Science graduate students served by existing interdisciplinary graduate education programs, such as PULSE?
- What is the role of on-line instruction in graduate education?
- What role do Master’s degree programs, including professional Master’s degree programs have, in enhancing the reputations of the College’s departments?

Elizabeth Taparowsky, Associate Dean for Research and Graduate Education, is the resource administrator to this working group.

Work product:  Working group C should begin its work by discussing the broad context of its charge and formulating, on the basis of those discussions, other pertinent and relevant questions. Its preliminary report, due on Friday, Dec. 18, should provide answers to the questions posed, as well as a concise set of preliminary recommendations for possible adoption by the strategic plan.
WORKING GROUP D: FACULTY HIRING

**Team members:** Edward Bartlett; Associate Professor, Department of Biological Sciences
Yong Chen; Professor, Department of Physics and Astronomy
Rebecca Doerge; Distinguished Professor, Department of Statistics
Tammy Emilson; Director of Financial Affairs, College of Science (SPGG member)
Lucy Flesch; Associate Professor, Department of Earth, Atmospheric, and Planetary Sciences
Ralph Kaufmann; Professor; Department of Mathematics
Jennifer Neville; Associate Professor, Department of Computer Science
Daoguo (“Joe”) Zhao; Professor, Department of Biological Sciences (SPGG member)

**Charge:** The College of Science currently has a fairly standard model for approving faculty searchers, in which the departments make annual hiring requests for consideration by the Office of the Dean. Recent initiatives in other units (e.g., the Provost’s cluster hire initiatives, and Engineering’s Pre-Eminent Teams) have established other faculty hiring models. In addition, partner accommodation is an increasingly important piece of faculty hiring. Working Group I should consider the following questions as it goes about its work:

- **Should the College of Science adopt its own interdisciplinary or cluster faculty hiring initiative?** What fraction of the College’s hiring resources should be devoted to such an initiative? How should College decide what areas to support, and how could it ensure sufficient transparency and faulty input?
- **Should the College of Science have a formal “target of opportunity” faculty hiring initiative?**
- **How might current search procedures be fine-tuned to ensure the creation of diverse applicant pools?**
- **What is the right mix of junior, mid-career, and senior faculty hiring?**
- **How could the College do a better job of anticipating infrastructure (especially laboratory space) needs as far in advance as possible?**
- **How could the College do a better job of recruiting its top faculty candidates to Purdue?**
- **Should the current model for funding start-up costs be modified?**
- **How should the College think about strategies for faculty retention and preemptive retention?**

Jeff Roberts, Dean, is the resource administrator to this working group.

**Work product:** Working group D should begin its work by discussing the broad context of its charge and formulating, on the basis of those discussions, other pertinent and relevant questions. Its preliminary report, due on Friday, Dec. 18, should provide answers to the questions posed, as well as a concise set of *preliminary* recommendations for possible adoption by the strategic plan.
WORKING GROUP E: EMERGING RESEARCH OPPORTUNITIES

Team members: Mahdi Abu-Omar; Professor, Department of Chemistry
Jean Chmielewski; Distinguished Professor, Department of Chemistry
Ananth Grama; Professor, Department of Computer Science (SPGG member)
Marietta Harrison; Associate Vice President for Research
Michael Manfra; Professor, Department of Physics and Astronomy
Jay Melosh; Distinguished Professor, Department of Earth, Atmospheric, and Planetary Sciences
Laura Pyrak-Nolte; Professor, Department of Physics and Astronomy
Freydoon Shahidi; Distinguished Professor, Department of Mathematics

Charge: The reputations of the seven College of Science departments are largely defined by the quality and impact of the research that goes on within those departments. If we are to grow in our scholarly stature, we must increase the quality, quantity, and external visibility of our research. Working Group E should consider the following questions as it goes about its work:

- What could be done to increase the likelihood of the College of Science being the birthplace of “the next big thing” as opposed to following other institutions there?
- How well does Science compare with other colleges, within and outside of Purdue, at successfully competing for large, extramurally funded centers? How could we do a better job of grooming potential leaders of such centers, especially among women and under-represented faculty?
- What is the role of industry in building internationally recognized research programs?
- In what ways have Purdue’s investments in interdisciplinary and cluster hiring paid off?
- What benefit might there be to identifying large, cross-cutting research themes and aligning some fraction of faculty hiring with those themes? How should such themes be identified?
- How could the College better anticipate and meet research infrastructure needs, both in terms of large, multi-user instruments needs and laboratory space?

Elizabeth Taparowsky, Associate Dean for Research and Graduate Education, is the resource administrator to this working group.

Work product: Working group E should begin its work by discussing the broad context of its charge and formulating, on the basis of those discussions, other pertinent and relevant questions. Its preliminary report, due on Friday, Dec. 18, should provide answers to the questions posed, as well as a concise set of preliminary recommendations for possible adoption by the strategic plan.
WORKING GROUP F: REPUTATIONAL STEWARDSHIP

Team members: Fabrice Baudoin; Professor, Department of Mathematics (SPGG member)
Rodrigo Bañuelos; Professor, Department of Mathematics
Tim Brouk; Communications and Media Specialist, College of Science
Graham Cooks; Distinguished Professor, Department of Chemistry
Chris Greene; Distinguished Professor, Department of Physics and Astronomy
Birgit Kaufmann; Professor, Department of Physics and Astronomy
Andrew Mesecar; Professor, Department of Biological Sciences
Andrea Spahn-McGraw; Director of Advancement, College of Science (SPGG member)

Charge: As much as most of us complain about university and department rankings, we must recognize that they are important: the College of Science will only be as great as we and others think we are! Although quantitative measures of excellence (e.g., grant funding and publication numbers) are important, and are being considered by other strategic planning working groups, the perceptions of others- especially those of recognized scholars- are critical influencers of our reputation and rankings. Working Group F should consider the following questions as it goes about its work:

- What would it mean to be generally recognized as the “top” science college in the nation, or the “best” college at Purdue? In what ways would the College of Science look and feel different than it does now?
- How could Science and its seven academic departments do a better job of communicating their strengths and accomplishments to the academic world outside of Purdue?
- In what ways can fund-raising be harnessed to increase the stature of our faculty and students, and the academic departments to which they belong?
- What does the College need to do to elevate its reputation as a place that nurtures, supports, and empowers a diverse community of faculty, students, and staff?

Jeff Roberts, Dean, is the resource administrator to this working group.

Work product: Working group F should begin its work by discussing the broad context of its charge and formulating, on the basis of those discussions, other pertinent and relevant questions. Its preliminary report, due on Friday, Dec. 18, should provide answers to the questions posed, as well as a concise set of preliminary recommendations for possible adoption by the strategic plan.
WORKING GROUP G: GLOBAL STRATEGIES

Team members: Claudio Aguilar; Associate Professor, Department of Biological Sciences
Marc Caffee; Professor, Department of Physics and Astronomy
Jonathan Harbor; Professor, Department of Earth, Atmospheric, and Planetary Sciences
Arvind Raman; Associate Dean for Global Engineering Programs, College of Engineering
Prudie Miller; International Student / Math Advisor, College of Science
Laura Starr; Director for Experiential Learning and Student Success, College of Science (SPGG member)

Charge: All of us understand that higher education is increasingly globalized— even as we also appreciate that higher education has yet to come to a common understanding of what is meant by a global university. Within Purdue, there are numerous large- and small-scale activities that support and enable international partnerships, although the University still struggles to articulate a coherent global strategy. Finally, the College continues to fall short of its goals for student participation in study abroad experiences, especially experiences that are at least one semester long. Working Group C should consider the following questions as it goes about its work:

- Should the College identify, support, and lead a small number of globally focused activities? If so, how should those activities be identified?
- What strategies might the College adopt to increase participation in study abroad experiences, especially those that last one semester or longer?
- What role do international undergraduate and graduate students play in fostering and nurturing a globally-aware College of Science?
- How can we ensure that any College-supported global strategies are attentive to issues of faculty, staff, and student diversity?
- How can global activities enhance the external prestige and reputation of the College and its academic departments?

Elizabeth Taparowsky, Associate Dean for Research and Graduate Education, is the resource administrator to this working group.

Work product: Working group G should begin its work by discussing the broad context of its charge and formulating, on the basis of those discussions, other pertinent and relevant questions. Its preliminary report, due on Friday, Dec. 18, should provide answers to the questions posed, as well as a concise set of preliminary recommendations for possible adoption by the strategic plan.
WORKING GROUP H: ENGAGEMENT

Team members: Chris Andronicus; Associate Professor; Department of Earth, Atmospheric, and Planetary Sciences
William Bayley; Outreach Coordinator, College of Science
Andrew Freed; Professor, Department of Earth, Atmospheric, and Planetary Sciences (SPGG member)
Victor Lechtenberg; Dean Emeritus, College of Agriculture
Sally Luzader; Manager of Corporate Relations, Department of Computer Science
Nicole Towner; Assistant Director of Recruiting, College of Science
Maya Wagle; Director of Corporate and Foundation Relations, College of Science
Bill Walker; Director of Outreach, College of Science

Charge: Engagement is a key pillar of Purdue’s land-grant mission. Moreover, engagement activities can enhance both internal and external prestige of the College and its departments. Although the College of Science supports some signature engagement activities, most notably Science Outreach, the College is probably less involved in engagement than some of the other large colleges at Purdue. Working Group G should consider the following questions as it goes about its work:

- Should the College increase the portfolio of engagement activities it supports? How would their success be measured?
- What role could engagement activities play in the student experience?
- How might the College help faculty identify incorporate engagement activities into grant proposals?
- How might the College better engage industry and companies in ways that benefit the research and teaching missions?
- What role could engagement activities have in recruiting a diverse community of faculty, students, and staff in the College of Science?

George McCabe, Associate Dean for Academic Affairs, is the resource administrator to this working group.

Work product: Working group H should begin its work by discussing the broad context of its charge and formulating, on the basis of those discussions, other pertinent and relevant questions. Its preliminary report, due on Friday, Dec. 18, should provide answers to the questions posed, as well as a concise set of preliminary recommendations for possible adoption by the strategic plan.
WORKING GROUP I: SCIENCE AS A BEST PLACE TO WORK

Team members: Timothy Delworth; Continuing Lecturer, Department of Mathematics
Nathan Demoret; Desktop Support Specialist, College of Science
Clark Gedney; Director of the Bio Media Center for Instructional Computing, Department of Biological Sciences
Lynne Horngren; Director, Undergraduate Education and Academic Advising, College of Science
Kendal Kosta-Mikel; Strategic Data Manager, College of Science (SPGG member)
Debra Nahlik; Administrative Assistant, Department of Physics and Astronomy
Leslie Plummer; Business Manager, Department of Earth, Atmospheric, and Planetary Sciences

Charge: The College of Science can only be as excellent as its staff. Although many of the factors that contribute to staff satisfaction are beyond the College’s control, there are ways in which the College influences staff morale and productivity. Working Group H should consider the following questions as it goes about its work:

- Do current staff award and recognition programs in the College of Science provide an opportunity to recognize all of the ways in which staff can be excellent? Are nomination procedures evenly applied, and do they result in the right number of people being recognized?
- How could the College do a better job of ensuring that staff members are able to participate in appropriate professional development opportunities?
- Are staff members able to have their concerns heard, both within their immediate reporting units and by the Office of the Dean?
- Do supervisors have the skills they need to foster a positive workplace climate? Is the College sufficiently attentive to the importance of staff diversity?
- Should the College have a replacement schedule for computer equipment, office furniture, and related items, or are those needs adequately met at present?
- How could the Office of the Dean communicate better with staff?
- Does the promotional ladder in the College of Agriculture work well, and could something analogous be developed in the College of Science?

George McCabe, Associate Dean for Academic Affairs, is the resource administrator to this working group.

Work product: Working group I should begin its work by discussing the broad context of its charge and formulating, on the basis of those discussions, other pertinent and relevant questions. Its preliminary report, due on Friday, Dec. 18, should provide answers to the questions posed, as well as a concise set of preliminary recommendations for possible adoption by the strategic plan.