

Integration of Research and Education in CAREER Proposals

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What does integration of research and education mean to you?

Тор

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integration

to form, coordinate, or blend into a functioning or unified whole



The Faculty Early Career Development (CAREER) Program is a Foundation-wide activity that offers the National Science Foundation's most prestigious awards in support of early-career faculty who have the potential to serve as academic role models in research and education and to lead advances in the mission of their department or organization. Activities pursued by early-career faculty should build a firm foundation for a lifetime of leadership in integrating education and research.



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Breaking Down the NSF CAREER Synopsis



Activities pursued by early-career faculty should build a firm foundation

for a lifetime of leadership in integrating education and research.

vision

Breaking Down the NSF CAREER Synopsis



and to lead advances in the mission of their department or organization.

alignment

local impact

Breaking Down the NSF CAREER Synopsis



most prestigious awards in support of early-career faculty who have the

potential to serve as academic role models in research and education

plans qualifications broader





integration to form, coordinate, or blend into a functioning or unified whole

"All CAREER proposals should describe *an integrated path* that will lead to a successful career as an outstanding researcher and educator."



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Articulate Your CAREER Vision

Research Vision

My vision for my career as a researcher is to

Orienting Questions

- What kinds of challenges do you see in the world that your work can address?
- What kinds of fundamental and applied questions do you want to answer? What excites you in the field?
- What transformation do you envision?
- Why is this vision important to you? Why is it important to the world?

Education Vision

My vision for my career as an educator is to

Orienting Questions

- What challenges do you see in engineering education that you would like to address?
- What kinds of things do you want to do as an engineering educator? What excites you?
- How will engineering education be changed as a result of the work you do as an educator?
- Why is this vision important to you? Why is it important to engineering education?

Articulate Your Career Vision

Integration of Research and Education

How are your research and education visions aligned?

My research vision is aligned with my education vision in the following ways:

1) _____ 2) _____ 3) _____

Articulate Your Career Vision

Outcomes

- 1) Vision Statements (Research and Education)
- 2) Core Values to filter your project vision
- 3) Clear areas of development

Building a CAREER Project Vision



What fundamental knowledge is needed to advance towards your research vision?

What systems need to be in place to advance towards your education vision?

Building a CAREER Project Vision



CAREER Ideation

Building a Project Vision



What fundamental knowledge is needed to advance towards your research vision?

What systems need to be in place to advance towards your education vision?

What can you achieve within the next five years to develop that fundamental knowledge?

What can you achieve within the next five years to create/enhance those systems?

Setting Project Objectives

Research Objectives

- Rationale
- Research Questions/Hypotheses
- Approach
- New Knowledge/Outcomes

Education Objectives

- Rationale
- Education Questions/Hypotheses
- Approach
- New Knowledge/Outcomes

CAREER Executive Summary



Research Project Vision

Research Objectives

- Rationale
- Research Questions/Hypotheses
- Approach
- New Knowledge/Outcomes

Research IM and BI Summary

Education Motivation

Education Project Vision

Education Objectives

- Rationale
- Education Questions/Hypotheses
- Approach
- New Knowledge/Outcomes

Education IM and BI Summary





- Data-Driven/Data Informed
 - guided by needs demonstrated through data





- Contextualized
 - To you
 - To your field
 - To your organization





- Strongly evidence-based
 - Both needs AND approaches rooted in literature
 - Use education/social science research as mechanism to build plans





- Foundational/Developmental
 - Builds on your skills and experiences
 - Builds new skills and provide new experiences
 - Path to your connected vision

CAREER Executive Summary - Integration





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integration





"Effective integration of research and education generates a *synergy* in which the process of *discovery* stimulates learning, and assures that the *findings and methods* of research and education are quickly and effectively communicated in a broader context and to a large audience."

integration





NSF "encourages all applicants to think creatively about the reciprocal relationship between the proposed research and education activities and *how they* may inform each other in their career development as both outstanding researchers and educators. "





- Research to Education Connection
 - How is the education work informed by research activities?
 - How can education work be thematically tied to research activities?





- Education to Research Connection
 - How are research activities informed by educational work?
 - How can educational activities impact research work?
- Examples
 - Necessary but insufficient





• Coherence

- Individual activities should be part of a whole
- Connections should be evident





- Measuring Success
 - Should be able to measure success/impact of education AND integration
 - How is the research influenced by education?
 - How is the education influenced by research?

ONE SIZE DOESN'T FIT ALL



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