NRT IMPACTS: Interdisciplinary training Model in Plant And Comp-Tational Sciences:
Logic Model, 5/2/19

Inputs

- Trainers/Faculty – engaged, productive, with research expertise → including a science educator
- CMSE
- Large, successful, productive plant sciences including collaborations across departments and faculty
- Central administration support – includes student scholarships, funding for symposium
- Multiple existing outreach activities, opportunities
- Existing professional development activities offered by graduate school
- Internship opportunities at federal level
- Existing networks/relationships with industry
- Strong student pool across disciplines
- Historically strong relationships among Exec Committee and trainers
- Efforts focused on the HDR "big ideas" from NSF
- CSBR evaluation

Activities

- Recruiting
- Bootcamp (?)
- Development and implementation of foundational courses
  - Foundation in Computational and Plant Science
  - Frontiers in Computational and Plant Science
  - (Plant Science only, implementation only) Introduction to Computational Modeling
- Forums – 1 credit, 2 required
- IMPACTS mentor training
  - Peer mentoring, undergrads, REU mentoring (What else?)
  - Develop individual development plan (IDP)- trainees
- Professional development workshops
- Interdisciplinary research experience with co-mentors
- Develop outreach
  - Raspberry Pi Jam
  - Link trainees to existing outreach
  - 4-H Garden
  - Girls Math and Science
  - Coding Camp
  - Darwin Days
  - MSU Science Day
- Trainee subcommittee participation (1 year) or symposium organization committee participation
- Social events
- Internship – link and expand
- Social media and blog presence
- Process and summative evaluation activities

Outputs

- Successful trainee recruitment
- Attendance and reflections (?)
- Course performance and instructor reflections
- Forum attendance and reflections
- IDPs
- Occurrence of PD workshops, reflections, PD products
- Presentations, manuscripts, posters, dissertations, proposals
- Outreach attendance and reflections
  - Video
- Subcommittee attendance and reflections
- Social event occurrence and attendance
- Internship report, portfolios
- Social media and blog posts
- Evaluation reports that align with activities

Outcomes

Short-term

- Increased recruitment and retention of good, engaged trainers
- Expanded trainer participation - including areas of need: ecology, computational engineering
- IMPACTS Trainees can communicate and teach computational and plant science topics to diverse audiences
  - Able to communicate across disciplinary fields
- Strong project management, mentorship and leadership skills held by IMPACTS Trainees
- IMPACTS Trainees possess the knowledge and ability to do interdisciplinary research and collaborate
  - Ability to generate important interdisciplinary research questions
  - Ability to conduct interdisciplinary research to answer the questions they have generated
  - Ability to collaborate effectively across multiple disciplines
  - Increased recruitment of URM
  - Transferable skill set

Long-term

- IMPACTS Trainees possess the ability to advance solutions to grand challenges by incorporating plant biology and computational methods
- Increased diversity in the disciplines
- IMPACTS Trainees serve as leaders in collaborative science
- IMPACTS Trainees are employable across multiple STEM contexts

Evaluation

Internal/External evaluation activities: formative, implementation, and progress evaluations in recursive design to inform and to guide project throughout planning and implementation phases

External/Contextual Factors

- University and departmental structure and expressed interest
- History of transdisciplinary work
- Proportion of underrepresented student populations in the state and region

Assumptions

- Secure funding throughout the project
- Buy-in from transdisciplinary faculty
- Institutional adoption of curricular changes