Student/Postdoc – Mentor – Collaborator Roles in Skills Development and Interdisciplinary Research

- Why do interdisciplinary research? Who benefits?

  Mentor, mentee, collaborator, society?

  Increased knowledge (for everyone)
  Increased funding
  Increased success of trainees getting jobs (improved reputation of the mentor and university)

- We live in a complex society with complex problems – these new challenges require teamwork, with people working in different areas of research and with different levels of expertise (including the sciences, social sciences, humanities, arts, engineering, etc.)

- Students/postdocs/mentors need to be exposed to and appreciate multiple disciplines

Skills Development

- Methods-based vs. problem-based approaches: should students learn a broad set of skills that can be applied to specific problems, or should they learn a narrow set of skills that can be applied to many problems? (or some of both!)

- What are the advantages of becoming an expert vs. a "jack of all trades"?

- If students are no longer experts in anything, is that bad?

- At the end of their studies, how will the students define themselves? What is important in terms of getting a job?

- How broad is the team? Does it involve multiple departments, colleges, industry vs. academia, international collaborators?

Communication

- Effective collaborations require collective thinking and cross-disciplinary communication – a good skill to learn!

- Teams need to learn how to speak the same language before they can make progress

- Team members need to learn how to talk to AND listen to people in other disciplines

- Basic knowledge and research approaches need to be understood

- Group activities and team building: seminars, conferences, workshops, retreats, mock study sections

- Regular communication within the team is needed, with good reporting and sharing of information

- New skills and ways of thinking will be acquired by the students, mentors, and collaborators – everyone benefits

Potential Barriers

- Reporting to multiple advisors and attending multiple seminars, group meetings, etc. - how do the students/postdocs/advisors manage their time?

- How many and what courses do the students have to take to be proficient in different disciplines?

- Which is more important, coursework or practical, hand-on training?

- Where do students publish if they work across disciplines? Which conferences should they attend?

- Is the department/college supportive of interdisciplinary work for students (multiple advisors, etc.)?

- Financial support – who pays?

- How long will it take a student to complete their degree? Is there a time investment to learn new skills for an interdisciplinary project? What is the payoff for the student and the advisor?

Responsibilities and Accountability

- Mentors and mentee's goals, obligations, expectation, etc. need to be determined and agreed upon; interdepartmental/college issues need to be worked out in advance

- Set guidelines and spell out the details

- Mentor should take an interest in the mentee's career and help advance their professional goals

- The mentor might need to change their mentoring style in order to adapt to students with different backgrounds or skill sets, since learning styles across disciplines might vary

- Be open minded – students and postdocs bring new skills and ideas and take projects in new directions – how can the mentor take advantage of the student/postdoc's prior knowledge and experience to benefit the project? Do the mentees have skills that you are not aware of? At the same time, students and postdocs need to be willing to take on new challenges, learn new methods, and work with new people and groups