EXPANDING PARTICIPATION THROUGH THE UNDERGRADUATE RESEARCH EXPERIENCE

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Common Themes: Success in Academia  
[Quintana Baker 00; Seymour Hewitt 97; Rodriguez 93; Astin 92]

- **Faculty**
  - Display initiative and leadership on issues of diversity
  - Share values and help define department culture

- **Students**
  - Interact with faculty outside classroom
  - Set realistic goals

- **Creating Community**
  - Encourage individual student to remain and participate
  - Create opportunities for leadership
  - Foster collaborative work

- **Mentoring**
  - Nourish continuum of master-journeyman-apprentice
  - Facilitate shared academic and research experiences
Focus
- Recruit competent but not confident student
- Develop skills
- Build support structure

Foundation
- Cooperative teams
- Integrated model
- Best practices
Foundation: Cooperative Teams-1

Benefits:

- Create higher quality products
- Achieve mastery or competence of task
- Develop social network
- Increase self-esteem
Foundation: Cooperative Teams-2

Elements:
- Build positive interdependence within the group
- Support members’ progress and involvement
  - Promotive interaction
  - Constructive critique
- Develop strong individual through accountability
- Teach and practice team skills
- Review on a regular basis how well the group is functioning and achieving its goals
MODEL COMPONENTS

- Orientation
- Research project framework
- Defined deliverables
- Regular meetings
- Outreach involvement
Purpose:
- Facilitate assimilation of new students
- Increase ownership of model

Benefits:
- Understand basic group/research skills
- Reevaluate model
Provide a framework in which students can realize the relevance of their assignments

**Description**
- Define mission and goals
- Map tasks to goals
- Define activities and timeline
- Promote project and time management

**Benefits**
- Understand importance of work
- Understand steps toward completing tasks
- Facilitate setting goals and balancing time
**Defined Deliverables**

**Define milestones for the project**

<table>
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<tr>
<th>Description</th>
<th>Benefits</th>
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<tr>
<td>Associate deliverable with assigned task</td>
<td>Develop domain expertise</td>
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<td>Provide constructive criticism of deliverable</td>
<td>Hone technical and communication skills</td>
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<td>Examples: presentation, critical review, summary, literature review</td>
<td>Contribute tangibly to project</td>
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<td>Structures individual accountability</td>
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<td>Track progress</td>
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### REGULAR MEETINGS

**Report progress, refine goals, solve problems, and discuss research**

<table>
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<tr>
<th>Description</th>
<th>Benefits</th>
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<tr>
<td>▪ Structured meetings</td>
<td>▪ Promote positive interaction</td>
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<td>▪ Status and problem reporting</td>
<td>▪ Structure individual accountability</td>
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<tr>
<td>▪ Discussion/presentations</td>
<td>▪ Practice group and communication skills</td>
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<tr>
<td>▪ Teach concepts</td>
<td>▪ Develop domain expertise development</td>
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<tr>
<td>▪ Constructive criticism</td>
<td>▪ Evaluate goals, tasks, and methodology</td>
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Students become involved in K-12 outreach activities.

**Description**
- Involve in outreach activity
  - Organize activity
  - Define component
  - Deliver existing component
- Discuss issues concerning recruitment and retention with K-12 students

**Benefits**
- Develop organizational skills
- Develop communication skills
- Fulfill desire to contribute to the community
- Relate to students—more effective recruiting
STRATEGIES

SUCCESS

Support

Develop

Recruit

Identify
SUMMARY

- Adaptable model
- Enhanced mentoring
- Benefits
  - Become lifelong learners
  - Develop technical and communication skills
  - Learn lessons on managing failure
  - Understand methods and process of research
  - Communicate and work in teams
- Handbook and workshops

http://www.cs.utep.edu/SERG/ARG/Affinity.html
REFERENCES


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