Obama-Singh 21st Century Knowledge Initiative Award
Sponsor

**US India Education Foundation (USIEF)**

Objective for grant rfp

5-Year program collaboration and partnership for educational reform, economic growth, and development of
PARTNERS:

Aligarh Muslim University & OSU

- Motto (English): Taught man what he did not know (Qu'ran 96:5)
- Established: 1877
- Type: Public
- Vice Chancellor: Lt. Gen. Zameer Uddin Shah
- Academic Staff: 1,342
- Students: 28,000
- Location: Aligarh, Uttar Pradesh, India
FUNDING

awarded summer 2013

Proposal

*Training the Next Generation of STEM Faculty at Higher Education Institutions in India*

Source

Obama-Singh 21st Century Knowledge Initiative award of the US-India Education Foundation (USIEF)
NEED in INDIA –

• 300,000 faculty members for existing & upcoming institutions serving 150 million students
• Current infrastructure insufficient
Proposal—

• Prepare world class faculty for Undergraduate institutions
• World class teaching skills
• World class research skills
DUAL DEGREE PROGRAM

Participants complete -

• **PhD** program at AMU in a STEM field
• **Master in Education** (MED) degree program in two years at OSU and AMU
OSU CONTRIBUTION

• Fellowship – tuition and fees
• 4 students in pilot (2 male; 2 female)
• Monthly stipend
• Research apprenticeship with matching STEM advisor
PLANNING

• Advisory group at OSU and AMU
• Steering committee
• AMU group met Sept 2013
• Dr. Anil Pradhan and Dr. Sultana Nahar represented OSU
PLANNING

• MOA and MOUs
• OSU Vice Provost William Brustein & AMU Pro-VC Brig. Ahmed, and VC General Shah
• Creation of STEM-ER Center of Excellence at AMU
STEM-ER Center AMU

• Creation of STEM-ER Center of Excellence at AMU
• Technology center for distance education courses
STEM-ER Center AMU

Technology center for faculty training
MED program adjustments at OSU

- Modify current MED program
- Substitute college teaching apprenticeship for student teaching
- Replace courses needed for Ohio licensure with research with OSU advisors
MED program adjustments at OSU

• Present to curriculum committee and receive OAA approval
PROGRAM ELEMENTS:

Year 1

• 50% Education
  – Learning and cognition
  – Multicultural
  – Science methods
  – Assessment
  – Research Apprenticeship – education

• 50% STEM
  – Research Apprenticeship – science
PROGRAM ELEMENTS

Year 2

- Apprenticeship Teaching Experience at AMU
- College Teacher Portfolio
  - Planning element
  - Teaching element
  - Assessment element
  - Modeled after the EdTPA assessment
- Capstone Experience at AMU
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</thead>
<tbody>
<tr>
<td>1. STEM Teaching Methods I (3) 5711, 5721</td>
<td>Reaching All Students in STEM (3) 5743</td>
<td>Internship (8) 5191-5741</td>
<td>Reading Across the Curriculum (3) If Needed 5442</td>
<td>Field Experience in India, practice teaching</td>
<td>Independent Study - Thesis project (3)</td>
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<td>2. Learning &amp; Cognition (3) 5741</td>
<td>STEM Teaching Methods II (5) 5722</td>
<td>Seminar (3) 5495-</td>
<td>Research AMU/OSU advisor</td>
<td>Research, AMU/OSU advisors (5)</td>
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<td>3. Multicultural &amp; Global Perspectives 6808 (3) [replacing Reaching all Students in STEM (s) 5743]</td>
<td>Technologies used in STEM (3) 5744-</td>
<td>Assessment in STEM I: Introduction &amp; Methods (3) 5745</td>
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<td>4.</td>
<td>Field Experience (2) 5189</td>
<td>Research with OSU A&amp;S or Eng advisor (8)</td>
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<td>5.</td>
<td>Reflective Seminar (2) 5495-</td>
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<td>6.</td>
<td>Apprenticeship UG Ed &amp; A&amp;S; 8898 (3)</td>
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<td>7.</td>
<td>Research with OSU A&amp;S or Eng advisor (8)</td>
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6 semester hours 16 semester hours 11 semester hours 0 semester hours 5 semester hours 3 semester hours
SELECTION PROCESS

• Academic excellence (determined by AMU)
• Three letters of recommendation
• SKYPE interview with open ended protocol (OSU)
• Post Candidacy students in dissertation stage
• Match to OSU research field
COHORT 1

• Selected spring 2014
• Arrived OSU August 2014
• Currently partnered with STEM advisors and participating in the pilot year program
# COHORT 1

<table>
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<tr>
<th>Student</th>
<th>Gender</th>
<th>Field</th>
<th>Partner Scientist Department</th>
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<tbody>
<tr>
<td>AR</td>
<td>male</td>
<td>Biochemistry</td>
<td>Radiobiology</td>
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<tr>
<td>AM</td>
<td>male</td>
<td>zoology/genetics</td>
<td>Center for RNA Biology</td>
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<tr>
<td>NR</td>
<td>female</td>
<td>biochemistry</td>
<td>Radiology</td>
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<tr>
<td>HN</td>
<td>female</td>
<td>Atomic spectroscopy</td>
<td>Astrophysics</td>
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INITIAL CHALLENGES

• Negotiating university systems for off-cycle international admissions
• Housing
• Distance education
• Balance between education and STEM opportunities
INITIAL CHALLENGES

• Balance between education and STEM opportunities
  • Adjustment to OSU
  • Multiple ‘extra’ opportunities
  • Only 24 hours in the day
  • Unfamiliar with cultural expectations regarding faculty/students
ANTICIPATED FUTURE CHALLENGES

• Scaling up to 10 students with multiple cohorts at the same time
• Multicultural course – how to adapt the course we have to the Indian context
• Match between Indian research fields and OSU research fields was difficult for four students
ANTICIPATED FUTURE CHALLENGES

• Expansion to other universities in India
• Inclusion of education faculty at AMU
• Expansion to Saudi Arabia and other countries
• Funding for all of the above
ANTICIPATED FUTURE CHALLENGES

• Potential to make case that undergraduate professors in STEM fields need preparation for teaching
Questions?

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Dr. Anil Pradhan & Dr. Sultana Nahar