

Institutional Infrastructure Needed for the Production of Well Prepared STEM Teachers

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Institutional Mission/Vision



Commitment

Key Faculty and Administrators



Structure

Empowered Interdisciplinary Team

Team Principles

- Mutual benefit
- Shared work, resources, credit, responsibility
- Recruit, train , retain

Team Members

STEM faculty/staff/administrators

Education faculty/staff/administrators

Partner School Districts

Superintendents/Principles/Key Teachers



On campus*
(Interdisciplinary)



Off campus
(Community Leaders)



Mutual benefit

- Student classroom (pre-clinical) observations, teaching internships, placement
- Institutional support of school districts – training, resources
- School, community and institutional support network for new teachers
- Recruitment

Tuskegee On-Campus Team

Head, Biology Department

Mathematics Department Faculty/Math Education Leader

Education Department Science and Mathematics Coordinator

Physics Department, ret./Science Education Leader

CAENS Dean – Agr&EnvSci, Bio, Che, Fd&NutriSci, IBS

CLAE Dean - Education, Liberal Arts (Mathematics)

Head, Department of Mathematics

Head, Department of Chemistry

Dean Graduate Programs/Dir IBS

Head, Agricultural and Environmental Sciences

Head, Department of Curriculum & Instruction

“Integral” and Continuous Recruitment & Retention

Department Heads

Key Faculty/Staff

Student Advisors

Teachers

Administrators

Communities

Alumni

Families

“The best anti-poverty program is a world class education”

Obama 1/27/10

**Army, Air Force, and Navy ROTC
scholarships, books, training, visibility, career opportunity**

General Core Competencies

Writing, oral presentation, humanities, social sciences, art, languages

STEM Discipline Courses

Effective *introductory* and upper level courses

Education Professional Courses

Dual degree, certification and placement

STEM Major Courses (continuous improvement)

Chemistry

- General Chemistry Excel – complex problem solving via small groups

Biology

- incorporation of biology data into college math courses
- Bioinformatics/simulations and modeling courses
- first year Biology Seminar-math problem solving skills/computer tools

Math

- Math 107 and Math 207 student centered, inquiry based learning

Undergirding STEM and Education Research

Faculty development

Student hands-on experience

Infusion of new knowledge into courses

Examples

materials science and engineering

cancer

nutrition

plant genomics

biofuels

immunology

pathology

epidemiology

animal physiology

agricultural sustainability

integrative biosciences

science and math education

Education Courses (Professional Studies)

Constructivist-Reflective

Students as active participants in their learning

Subject matter, teaching strategies, individual interests, societal context

Proficiencies

State Standards (e.g., Alabama State Department of Education (ALSDE))

National Council for Accreditation of Teacher Education (*NCATE*) Standards

National Council of Teachers of Mathematics (NCTM) Standards

National Research Council (NRC) Standards

Assessment

Content Knowledge, Disposition

Certification and Placement

Summary Descriptors

Mission oriented
Empowered team
On campus and Community based
Shared/mutually beneficial actions
Integral recruitment
Continuous improvement
Student Centered Learning
STEM focused
Education focused
Certification
Placement
Support Network

Striving for “A World Class Education” for Each Student