Regulation and modeling of lignin biosynthesis
a systems biology approach

KENAN FELLOWS PROGRAM
FOR CURRICULUM AND LEADERSHIP DEVELOPMENT

Class of 2012 Kenan Fellowship

A Systems Biology Approach to Understanding Lignin Production

Kenan Fellow: Sara Morey, Wakefield High School 9th Grade Center, Wake County Public Schools

Mentors: Dr. Ron Sederoff, Dr. Joel Ducoste and Dr. Vincent Chiang, NC State University

Assistant Director of Program Operations, Danielle Seneschal, Kenan Fellows Program

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About the Program

The Kenan Fellows Program for Curriculum and Leadership Development is a competitive two-year fellowship offered to K-12 public school teachers.

The mission of the Kenan Fellows Program is to enhance curriculum relevance for the benefit of all students; engage teachers, business, and universities through unique professional collaboration; and promote growth opportunities for teachers and the teaching profession.

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- **Promoting Teacher Leadership**
- **Energizing School Curriculum**
- **Leveraging Partnership Power**

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Activities

•**October -November 2009:** This Fellowship was made available for middle and high school teachers from Wake, Durham, Orange, Johnston and Chatham counties.

•**December 2009- February 2010:** Kenan Fellow application is available online

• **March 2010:**
Applicants are Interviewed
Dr. Ducoste participated in the interview and selection process with a panel scientists and educators and NC State University.

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Findings

- **March:** Sara Morey awarded Kenan Fellowship and selected to collaborate with the project: *A Systems Biology Approach to Understanding Lignin Production*
- **April:** Kenan Fellows Orientation-Meet & Greet
- **May:** Fellows and Mentors plan goals, procedures and expectations for the summer research experience.
- **June:** Kenan Fellow Summer Institute
  - Center For Inquiry Based Learning- Lesson development
  - Crucial Conversations- Leadership component
- **July:** Summer Research Experience
  - exposed to cutting edge processes in breeding: including tracking genetic markers, manipulating biological process and fine tuning the growing processes.
  - learn methods used to simulate complex communication at the cellular level
  - understand the cells ability to reproduce and uptake essential nutrients for its survival.
  - develop problem based interdisciplinary lessons using systems biology methods

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Mentor Responsibilities

- Coordinate research activities with the Fellow for two consecutive summers
- Provide enriching experiences to enhance the Fellow's science and research skills
- Provide authentic lab experiences for the Fellow when applicable
- Visit the Fellow's classroom a minimum of once each semester to present or co-teach
- Collaborate on the development of an innovative curriculum product and meet with the Fellow throughout the year to review the product and its pilot in the classroom
- Participate in special events of the Kenan Fellows Program, such as Fireside Chats with policy leaders.
- Meet with Kenan Fellow Advisors

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Two Year Timeline

Year One

Summer Institute NC State	Fellows Work with Mentors	Summer Institute NC State	Fireside Chat	NCSTA Greensboro, NC	Mentors Visit Classrooms	Fireside Chat
June 21 – 25, 2010	June 28 - July 23, 2010	July 26 - July 30, 2010	October 2010	Nov. 18 – 19, 2010	Fall 2010 Spring 2011	March 2011

Year Two

Fellows Work with Mentors	Summer Institute NCCAT (Cullowhee, NC)	Fellows Work with Mentors	Fireside Chat	NCSTA Greensboro, NC	Mentors Visit Classrooms	Fireside Chat
June 20 – July 8, 2011	July 11-15, 2011	July 18 – 29, 2011	October 2011	November 2011	Fall 2011 Spring 2012	March 2012