



# WIMS Research Experiences for Undergraduates (REU)

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## REU Components

### Primary Component

- Research Projects with Mentoring
  - Research Training Sessions
  - Mentor Training Sessions
- Research projects are specially developed for an 8 to 10 week summer experience, affiliated with existing ongoing research projects of graduate student mentors and faculty advisors.

### Secondary Components

- Communication Skills
- Professional Ethics
- LSAMP Awareness
- Graduate Study Sessions

### Ancillary Components

- Tours: Government Labs, Mich. Nanofabrication Lab, UM and MSU Labs, Henry Ford Museum
- WIMS Seminar Series and Discussions
- Camaraderie w/ Students in Other Research Programs

### Evaluation by Third-Party Professional Evaluator

- Process Evaluation for first year
- Entry and Exit Interviews (Students, Mentors, Admin)
- Attend Session of Primary & Secondary Components
- Final Report

## WIMS REU GOALS

- Engage undergraduate students in meaningful ways in existing WIMS research, facilitating students to become familiar with MEMS and microsystems, and cutting-edge applications
- Provide graduate students with opportunities to gain experience with research project planning and timing, personnel supervision, budget management, and mentoring
- Motivate students to pursue advanced degrees in science and engineering, with emphasis in MEMS and microsystems:
  - Motivate undergraduate students to pursue graduate study
  - Motivate graduate students to pursue Ph.D., with teaching/research realistic career option

## Communication Skills Activities

Mr. Jack Fishstrom

- Goal is to document the Research Projects  
 Format: Instruction, written reports, consultations
1. Project Description – Written
  2. Progress Report (Written and Oral Practice)
  3. Final Report – Written
  4. Closing Symposium – Research Oral Presentations (Each written report has first draft and revised second draft.)

## Professional Ethics

Dr. Susan Montgomery and Mr. Jack Fishstrom

- Goals are to advance student awareness of professional responsibility, and apply ethical reasoning and principles to REU project (& personally)  
 Format: Presentations and Engaged Discussions
- Six steps for Ethical Analysis
  - Ethical Dilemmas as Students and Professionals
  - Case Studies and Ethical Responsibility
  - Morality and Engineering Codes of Ethics
  - Ethical issues associated with Research Project being done by the REU student

## LSAMP Awareness

Ms. Lexanna Lyons

- Goals are to inform REU students about legal/ethical dilemmas faced by civil rights leaders, LSAMP program achievements, and education and career opportunities for LSAMP students.  
 Format: Presentations and Engaged Discussions
1. King/Chavez/Parks – Legal and Ethical Dilemmas
  2. From KCP to LSAMP
  3. Tour of “With Liberty and Justice for All” at Museum

## Graduate Study

Prof. L.C. McAfee

- Goals are to inform students about selecting graduate schools, application & admission process, GRE, financial aspects, and professional academic careers.  
 Format: Presentations and Engaged Discussions
- Selecting Graduate Schools
  - Admission Profiles for several graduate schools
  - Financial Awards available (NSF, GEM, Univ, Dept, etc)
  - Major Hurdles during PhD Process
  - Other Topics (GRE, Academic Careers)



## Other WIMS Undergraduate Research Programs

WIMS Undergraduate Research (WUGR)  
 Integrated Microsystems Enterprise (IME)



## WIMS REU and WIMS LSAMP REU Participant and Graduate/Professional Study Counts for 2002 – 2007

Year →	WIMS REU				WIMS LSAMP REU			
	2002	2003	2004	2002-04 Totals	2005	2006	2007	2005-07 Totals
Total Participants	10	11	9	30	7	6	9	22
Females	5	5	3	13	1	2	1	4
Males	5	6	6	17	6	4	8	18
Underrepresented Minorities	2	5	4	11	5	4	9	18
Home Universities	6	6	7	14	4	4	6	11
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Graduate Study (thru 1-Oct-07)	8	9	8	25	4	2	NA	6
PhD/Prof. Study (thru 1-Oct-07)	2	2	2	6	1	1	NA	2

