2005 SUMMER RESEARCH EXPERIENCE FOR UNDERGRADUATES (REU)

This summer, June 13 through August 19, 2005, the University of Washington Engineered Biomaterials (UWEB) program will be sponsoring a summer research program for undergraduates on the university’s Seattle campus. Participants will be involved in ongoing research projects with investigators and will have the opportunity to take part in workshop training sessions in communication skills, scientific presentation, organization and delivery, designed to provide the undergraduate scientist with solid skills that will serve as a foundation for graduate study.

UWEB, which is a National Science Foundation (NSF) Engineering Research Center (ERC), has a strong commitment to undergraduate education with a mission to increase diversity in the field of engineering. Through the summer REU program, UWEB will take advantage of the uniquely interdisciplinary research environment at the biology and engineering interface to provide high quality summer research experiences for undergraduates from around the country. We strongly encourage women, under-represented minorities, and students with disabilities to submit applications.

The application deadline for the UWEB Summer Research Experience for Undergraduates Program 2005 is March 18, 2005. Applications postmarked after the deadline will not be reviewed.

For more information contact:

Joy Louie, Undergraduate Program Coordinator
University of Washington Engineered Biomaterials (UWEB)
A National Science Foundation Engineering Research Center
Box 351720 Seattle, WA 98195-1720

Voice: (206) 221-5829
Fax: (206) 616-9763
E-mail: louie@uweb.engr.washington.edu
Biomaterials and medical devices are widely used in humans in applications as diverse as heart valves, hip joints, pacemakers, tooth implants, drainage shunts, intraocular lenses and heart assist devices. They save lives and improve the quality of life for millions and form the basis for a strong, successful, humanitarian industry. However, these biomaterials and devices never work as well as the part they are intended to replace, leading to patient dissatisfaction, physician concern, and a financial burden on the health care system.

The University of Washington Engineered Biomaterials (UWEB) Engineering Research Center has a sharply focused objective: to develop a new generation of biomaterials that exploit specific biological recognition mechanisms. Such materials will be designed to, upon implantation, heal in the body in a facile, physiologically normal manner by interacting with specific cell receptors and initiating the desired biological responses. This is in contrast to existing biomaterials that are not recognized by the body and are walled off from the body.

UWEB is centrally housed in a facility on the University of Washington campus. Administrative offices, a classroom, a conference room, library, laboratories, student offices and faculty offices occupy approximately 10,000 sq. feet in Bagley Hall. Special facilities include a large tissue culture laboratory for research and teaching. The University of Washington Surface Analysis Recharge Center in Benson Hall is only a short distance away and makes available to UWEB members state-of-the-art surface analysis equipment. Each of the participating University of Washington investigators in UWEB has his/her own laboratory and facilities for research, parts of which are oriented toward UWEB programs.

The University of Washington, and the Department of Bioengineering in particular, have a well deserved reputation for promoting a richly collaborative research environment. UWEB will take advantage of these natural opportunities to expose undergraduate researchers to cutting-edge research at the biology and engineering interface in a team setting that stresses the value of interdisciplinary approaches to engineering problems such as biomaterial development.

The heart of the program will be carefully mentored research experiences that team the undergraduate with a graduate student, a professor, and, in some cases, an industry researcher. The teams will be focused around a UWEB project that has been carefully selected as a good example of interdisciplinary research and one that has ties to industry research interests.
REU Program Requirements...

Please read the following program requirements carefully before you complete the application form:

1. You **must** be a U.S. citizen or a permanent resident of the U.S. or its possessions.
2. You **must** devote **40 hours per week** to the program.
3. You **cannot** enroll in classes or hold other jobs during the day. Participants will be paid a stipend and will not receive academic credit for the research experience.
4. You **must** attend the weekly communication classes and journal club and all other required lectures, seminars, focus groups, and workshops.
5. You **must** submit a research paper of journal article quality and participate in a poster session at the end of the program.

What participants will receive...

1. Involvement in an interdisciplinary research project with a team where researchers are working together to solve a common science problem.
2. An interactive poster session at the end of the summer, where undergraduate researchers present their results to the UWEB engineering community.
3. Lectures on ethics, communications skills, and selected lectures from the UWEB “Engineers’ Tool Chest” course.
4. Publication of a journal article describing the REU student’s research project in the UWEB Journal of Undergraduate Research in Bioengineering (JURIBE).
5. A stipend of $2500 for the ten week program.
6. Room and a daily meal allowance to a maximum of $1950 for the ten week program.
7. Reimbursement of travel expenses to a maximum of $550.
Application information...

The deadline for the application packet for the 2005 UWEB Summer REU Program is March 18, 2005. Applications postmarked after the deadline will not be reviewed.

A complete application consists of:

1. A completed and signed UWEB 2005 Summer Research Experience for Undergraduates Program application form (pages 5-6).
   - All questions must be answered fully for your application to receive consideration.
   - The essay questions must be type-written.

2. Two references (Recommendation Forms are included in this packet, pages 7-10).

3. An official transcript of coursework from your current college or university. Please note: If you have completed coursework at another college or university that is not documented on your current transcript, and you would like to have this work considered by the review committee, you must submit additional transcripts.

Send your completed and signed application form and transcript(s) to:

Joy Louie
Undergraduate Program Director
UWEB Summer REU Program
Box 351720
Seattle, WA 98195-1720

Selection criteria will be based on the quality of the application written materials, letters of recommendation and academic record. Appropriate science and mathematics courses are required for participants, and it is expected that the majority of students will be academic sophomores and juniors who have completed basic chemistry, mathematics, and engineering coursework, where applicable.
UWEB SUMMER REU PROGRAM 2005 – APPLICATION FORM

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<th>FIRST NAME</th>
<th>MIDDLE NAME</th>
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PARENTS OR GUARDIAN

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<th>NAME</th>
<th>LIVING?</th>
<th>OCCUPATION</th>
<th>STATE OF RESIDENCE</th>
<th>EDUCATION/COLLEGE (HIGHEST LEVEL)</th>
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DEPENDENT? Yes ☐ No ☐ If No, indicate income: __________

AVERAGE ANNUAL FAMILY INCOME:

- UNDER $15,000 ☐ $15,000-$25,000 ☐ $25,000-$35,000 ☐ $35,000-$45,000 ☐ $45,000-$55,000 ☐ $55,000-$65,000 ☐ ABOVE $65,000 ☐

COLLEGES AND PROFESSIONAL SCHOOLS ATTENDED

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<th>NAME</th>
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HONORS RECEIVED WHILE IN HIGH SCHOOL OR COLLEGE

CURRENT CLASS STANDING: FRESHMAN ☐ SOPHOMORE ☐ JUNIOR ☐ SENIOR ☐

CUM. GPA: MAJOR GPA: STUDENT ID #

WHAT IS YOUR RACIAL/ETHNIC SELF-DESCRIPTION? (Check only one)

- NATIVE AMERICAN (NA) ☐ PACIFIC ISLANDER (PI) ☐ AFRICAN AMERICAN (AA) ☐ CAUCASIAN (C) ☐
- ASIAN (A) ☐ MIXED – NA, PI, AA ☐ MIXED – C, A ☐ HISPANIC ☐

DO YOU HAVE A PHYSICAL, SENSORY, OR MENTAL IMPAIRMENT WHICH SUBSTANTIALLY LIMITS ONE OR MORE LIFE ACTIVITIES (E.G. WALKING, SEEING, HEARING, BREATHING, OR LEARNING)? YES ☐ NO ☐

AREAS OF INTEREST

EXTRACURRICULAR, COMMUNITY, AND AVOCATIONAL ACTIVITIES

EMPLOYMENT DURING SCHOOL YEARS (LIST TYPE OF WORK AND APPROXIMATE HOURS PER WEEK) OR OTHER RESEARCH RELATED EXPERIENCES

HOW HAVE YOU SPENT YOUR SUMMERS DURING YOUR COLLEGE YEARS? (INCLUDE THE YEAR AND LOCATION OF PARTICIPATION IN SUMMER PROGRAMS)

HOW DID YOU FIND OUT ABOUT THE UWEB SUMMER REU PROGRAM?

Page 5
ESSAY QUESTIONS: PLEASE ANSWER EACH OF THE QUESTIONS BELOW. TYPE YOUR ANSWERS ON A SEPARATE SHEET OF PAPER. FOR EACH QUESTION, KEEP YOUR ANSWERS TO 1-2 SHORT, CONCISE PARAGRAPHS.

1. **What aspects of the UWEB Program sparked your interest?** (For more information about the UWEB program, check our web site at http://www.uweb.engr.washington.edu.)

2. **Why do you think that the UWEB Summer REU Program is a good fit for you and your goals?**

3. **If accepted, what do you expect to gain from the program? What will you contribute?**

4. **Tell us something you believe to be unique about you (e.g. hardships you have overcome, a significant personal experience, etc.).**

CERTIFICATION AND SIGNATURE

I certify that the information submitted in this application and associated materials are current, complete, and accurate to the best of my knowledge.

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<th>SIGNATURE (INK ONLY)</th>
<th>DATE</th>
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Please send your completed application form with a copy of your official academic transcript from the college which you are currently attending (unofficial transcripts will not be accepted) to:

Joy Louie, Undergraduate Program Coordinator
University of Washington Engineered Biomaterials
2005 Summer REU Program
Box 351720
Seattle, WA 98195-1720

If you have any questions, contact Joy Louie at (206) 221-5829, Fax (206) 616-9763, or e-mail louie@uweb.engr.washington.edu.

**The deadline for applying to the 2005 UWEB Summer REU Program is March 18, 2005. Applications postmarked after that date will not be reviewed.**

UNIVERSITY OF WASHINGTON ENGINEERED BIOMATERIALS
A NATIONAL SCIENCE FOUNDATION ENGINEERING RESEARCH CENTER
To the applicant: Two references are required. Print two copies of the Recommendation Form (pages 7-10). This section is to be completed by the applicant before it is presented to the individual providing the reference.

Applicant's SSN: ________________________________
Applicant's Name: ________________________________
Applicant's Address: ______________________________________
_____________________________________
Applicant's Phone #: ________________________________
Applicant's Email Address: ________________________________

To the person providing the reference:
Please answer as many questions as your acquaintance with the student permits. The application deadline for the 2005 REU Program is Friday, March 18, 2005. Your completed form should be sent to:

Joy Louie, Undergraduate Program Coordinator
University of Washington Engineered Biomaterials
2005 Summer REU Program
Box 351720
Seattle, WA 98195-1720
louie@uweb.engr.washington.edu

If you have questions regarding this form or the UWEB program, please call Joy Louie at (206) 221-5829, or (206) 616-9763 (fax).
1. How long have you known the applicant? _________________________

2. In what capacity have you known the applicant? __________________

3. Please rate the applicant by circling the appropriate number which most nearly represents your opinion of the applicant in comparison with a representative group of individuals you have known who have had the same amount of education and experience.

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<td>Imagination/Creativity</td>
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<td>Maturity/Ability to take responsibility for actions</td>
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<td>Ability to communicate (written)</td>
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<td>Ability to communicate (spoken)</td>
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4. What do you consider to be the applicant’s strongest characteristics?

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Page 8
5. What do you consider to be the applicant’s weakest characteristics?

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6. To your knowledge, are there any special circumstances relative to the applicant which would be of value as the student’s credentials are evaluated for this program?

____________________________________________________________________
____________________________________________________________________

7. Do you believe the academic record of the applicant is a true reflection of her/his intellectual ability?

_____ Yes.

_____ No. Please explain:

____________________________________________________________________
____________________________________________________________________

8. In what ways do you believe the UWEB Summer REU Program can be of value to the applicant?

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9. Add any special comments that will help to give a more complete picture of the applicant’s abilities and potential as a candidate for continued work and study in research.

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Please Print

Name: ________________________________ Phone: _______________  
Title/Position: ________________________ Department: _______________
Name of College/University: _________________________________________
Address: ___________________________________________________________________
Signature: _____________________________ Date: ________________