Syracuse University Senate Committee on Research
Report of March 2015

I. COMMITTEE CHARGE

“The Committee on Research shall be responsible for stimulating, assisting and coordinating the various University groups interested in research. It shall also observe and report on research activities with respect to the maintenance of principles of academic freedom and open disclosure of research findings. It shall recommend policy regarding research leaves. It shall strive to promote a proper balance between research and teaching.”

Source: BYLAWS OF THE SENATE OF SYRACUSE UNIVERSITY, Article V. Standing Committees, Section 14, as amended during the 2006-2007 session of the University Senate

Considering the fact that there is a detailed Strategic Planning Process that started in early Fall 2014, and based on discussions with ex-provost Eric Spina, the Committee decided to focus on Undergraduate Research Experiences across various schools and colleges for the 2014-15 academic year. We wanted to learn how various schools and colleges are engaged in enhancing undergraduate students’ experiences in the research enterprise and whether there are any best practices/successful strategies and/or barriers faced by faculty across various units.

In the course of our investigation, we learned that a similar study had been done some time ago by a University Senate Task Force on Undergraduate Research and Creative Activities. The detailed final report of the Task Force, submitted to the Senate in April 1994, is presented as Appendix 2 of this document.

II. DISCOVERY PROCESS

We came up with the following three questions about undergraduate student involvement in faculty research and reached out to all schools and colleges (by contacting Deans and/or Department Chairs/Associate Deans):

1. If you involve undergraduates in your research projects, how/why do you do so? What kind of tasks do you assign to undergraduates?

2. What are some successful strategies for incorporating undergraduates into research?

3. What are some barriers to doing so?

These units responded to the survey: the School of Architecture; the College of Arts and Sciences (specifically, the Department of Art and Music Histories, Department of English and Textual Studies, Department of English and Textual Studies - Digital Humanities Program,
Department of Religion, and Division of Sciences and Mathematics); the School of Education (specifically, the Department of Counseling and Human Services, Department of Exercise Science, Department of Reading and Language Arts, and Department of Teaching and Leadership); the College of Engineering and Computer Science; the Falk College of Sport and Human Dynamics; the School of Information Studies/iSchool; the Maxwell School of Citizenship and Public Affairs (specifically, the Department of Geography, Department of History, International Relations Program, Policy Studies Program, and Department of Political Science); and the Whitman School of Management

While a Brief Summary of Survey Responses follows, a much more detailed compilation of information provided by Schools/Colleges/Departments is available in Appendix 1 of this document.

III. BRIEF SUMMARY OF SURVEY RESPONSES

| 1--If you involve undergraduates in your research projects, how/why do you do so? What kind of tasks do you assign to undergraduates? |

A--Why do you involve undergraduates in your research projects?

a) To provide educational opportunities for students.

b) To provide an entry point for the scientific inquiry and rigor needed to be successful in graduate school.

c) To help students gain confidence and develop analytical skills that can be assets in future careers.

d) To augment a research team’s capacity and productivity.

e) To allow faculty to benefit from the fresh perspective undergraduates bring.

B--How do you involve undergraduates in your research projects?

a) In activities related to coursework and honors/capstone projects.

b) “Hands-on” engagement in research.

| 2--What are some successful strategies for incorporating undergraduates into research? |

a) Activities integrated into or supplementing coursework (including independent study and distinction/honors projects).

b) Proactive recruitment of students eager to engage in research. |
c) Promotion of research activities as prestigious.

d) Integration of undergraduate students into “real” research projects; creation of infrastructures and environments that are supportive of undergraduate research assistants.

e) Development of mechanisms for subsidizing undergraduate research activities and compensating undergraduate research assistants for their contributions.

**3--What are some barriers to doing so?**

a) Absence of opportunities for undergraduate students in some types of research/lack of tasks suitable for undergraduate research assistants and/or faculty preference for graduate RAs.

b) Lack of undergraduate-student awareness of and/or interest in academic research.

c) Lack of undergraduate preparation for engagement in research activities, in some cases due to curriculum design/sequencing.

d) Limited student availability and concerns about student reliability.

e) Limited faculty availability and lack of faculty incentives to serve as undergraduate researchers’ mentors/supervisors.

f) Infrastructure and logistical challenges.

g) Lack of financial support.

**IV. LINGERING QUESTIONS AND CONCERNS**

Based on discussions among Senate Research Committee members as well as on concerns raised by various schools and colleges, we highlight below some questions related to undergraduate student research.

(1) What constitutes undergraduate research across disciplines, from STEM fields to the humanities to the social sciences and professional programs?

What skills do students need to engage in research across these fields? Where on our campus do or could they learn those skills?

(2) Should all or only a portion of undergraduates participate in research?
Currently, a small percentage of undergraduates participate in research. Should an attempt to increase the participation rate be part of the effort to improve the SU undergraduate experience overall?

(3) What are the expected outcomes of research for undergraduate students?

- At minimum, students simply get research “experience.” At higher levels, they conduct research for public presentation and/or publication.
- Might it be possible to achieve congruence between the goals of undergraduate students seeking research opportunities and the goals of faculty members considering involving students in research projects? An undergraduate student goal may be to leverage research experience for internships, graduate school application, or job market success. A faculty member’s goal may be to take advantage of student manpower to get work done. Could both constituencies be better served by creating credit-bearing and fee income-generating research opportunities for students?

(4) Institutional support

(a) Oversight

- Who should be responsible for overseeing undergraduate research? (See also related material in Appendix 2, the 1994 report of the Syracuse University Task Force on Undergraduate Research and Creative Activities.)
- Many highly-ranked colleges and universities have Offices of Undergraduate Research that obtain funding, sponsor symposia, assist students seeking internships, etc.
- Currently, SU programs and support geared toward undergraduate research are administered at the departmental level, so availability of research opportunities varies significantly across disciplines.
- Could SU develop more effective mechanisms for facilitating research involvement for low-income/first-generation college students?

(b) Demand

- How can SU meet the demand, in terms of both faculty support and space, for undergraduate research?
- If faced with a wave of students interested in doing research, how could we accommodate them without additional resources?

(c) Curriculum

1 Examples from other institutions:

https://cns.utexas.edu/fri
http://www.academiessummerinstitute.org/main/goals.html
http://www.purdue.edu/discoverypark/caspie/
How can research methodology training be incorporated into our curriculum to reach students earlier in their time at SU?

How can students learn essential research skills without putting additional burden for that training on faculty members?

Participation in research can serve as an educational opportunity that supports student retention, so a forum approach to undergraduate research, more specialized than that of existing First-Year Fora, might be considered. (Such courses could offer opportunities for peer-to-peer mentoring, with juniors and seniors advising freshmen and sophomores.)

Undergraduates might be offered “class-based research experiences,” with courses focusing on “mini” research questions. This could help students understand that “our knowledge base is not complete” and that research is conducted to build our knowledge base.

(5) Existing opportunities

Could unused work-study funding be channeled into programs that would allow students to work at research tasks rather than at menial jobs?

(6) How can undergraduate research be funded?

- Could the responsibility for funding undergraduate research be shared, perhaps with a formula such as 40% government (work-study) funding; 30% University-level funding; 30% school/college-level or department-level or funding?
- How can faculty members be incentivized to supervise undergraduate researchers?
- For laboratory-based research, how can funding be procured to pay for lab supplies and the services of graduate-student/postdoctoral mentors?

(7) Syracuse University Student Association Perspective

Real undergraduate interest in research opportunities is manifest in a current initiative of the Syracuse University Student Association (SA), which conducted a recent survey (February 2015) of Syracuse University and SUNY College of Environmental Science and Forestry undergraduates “to determine undergraduate research interest and opportunities at Syracuse University and assess whether or not students need funding during the summer to pursue research.” On the basis of both the survey findings and a review of support for undergraduate research at several peer institutions, the SA has recommended improving access to information on “undergraduate research opportunities on campus, domestically, and internationally;” establishing a “grant program to fund ... undergraduate students who are interested in ... research opportunity” and providing “opportunity for students to complete undergraduate research abroad.”
V. COMMITTEE RECOMMENDATIONS

1. Establish an Office of Undergraduate Research & Scholarship to facilitate and coordinate the attainment of research experience(s) to undergraduate students across the University.
2. Develop mechanisms for publicizing current and potential research experience opportunities to undergraduate students and vehicles for showcasing products of such experiences.
3. Allocate funding to support undergraduate research activity.
4. Synchronize undergraduate curricula with research engagement opportunity offerings.
5. Formulate tools to assess learning outcomes obtained by undergraduate students involved in research activities.

2014-2015 Members of the University Senate Committee on Research

Dinesh K. Gauri, Associate Professor, Department of Marketing, Whitman School of Management
(Committee Chair)
Lydia W. Wasylenko, Librarian, Department for Research and Scholarship, University Libraries,
(Committee recorder)
Gina Lee-Glauser, Vice President for Research (ex officio)
Jamie L. Winders, Associate Professor and Chair, Department of Geography, Maxwell School of Citizenship and Public Affairs
Ramesh Raina, Associate Professor and Chair, Department of Biology, College of Arts & Sciences
Heng Yin, Assistant Professor, Department of Electrical Engineering and Computer Science, College of Engineering and Computer Science
Patricia (Patti) E. Ford, Budget Manager, Department of Physics, College of Arts & Sciences
Theodore A. Endreny, Professor and Chair, Department of Environmental Resources Engineering, SUNY ESF
James Haywood Rolling Jr., Professor and Chair, School of Education (Art Education and Teaching and Leadership) and College of Visual & Performing Arts
Omer Yaman, graduate student, Department of Electrical Engineering and Computer Science, College of Engineering and Computer Science
Syracuse University Senate Committee on Research
Report of March 2015

APPENDIX 1
DETAILED SUMMARY OF SURVEY RESPONSES FROM SCHOOLS / COLLEGES OR INDIVIDUAL ACADEMIC DEPARTMENTS

Information summarized here was submitted by Syracuse University schools/colleges or by individual academic departments in response to three specific questions about undergraduate involvement in faculty research:

1. If you involve undergraduates in your research projects, how/why do you do so? What kind of tasks do you assign to undergraduates?

2. What are some successful strategies for incorporating undergraduates into research?

3. What are some barriers to doing so?

Survey respondents: School of Architecture; College of Arts and Sciences (specifically, Dept. of Art and Music Histories; Dept. of English and Textual Studies; Dept. of English and Textual Studies - Digital Humanities Program; Dept. of Religion; Division of Sciences and Mathematics); School of Education (specifically, Dept. of Counseling and Human Services; Dept. of Exercise Science; Department of Reading and Language Arts; Dept. of Teaching and Leadership); College of Engineering and Computer Science; Falk College of Sport and Human Dynamics; School of Information Studies/iSchool; Maxwell School of Citizenship and Public Affairs (specifically, Dept. of Geography; Dept. of History; International Relations Program; Policy Studies Program; Dept. of Political Science); Whitman School of Management

S/C: School/College-level feedback
D: Department-level feedback
1--If you involve undergraduates in your research projects, how/why do you do so? What kind of tasks do you assign to undergraduates?

A--Why do you involve undergraduates in your research projects?

S/C: To provide “educational opportunities for students [and] exposure to research focused careers, especially for under-represented groups;” to “… [sharpen] students’ deductive reasoning;” to provide “an entry point for the scientific inquiry and rigor needed to be successful in graduate school;” to allow students to “deepen their understanding of course material and explore emerging interests in greater depth;” to help students gain confidence and develop analytical skills that can be assets in future careers; to “augment a research team’s capacity and productivity;” to allow faculty to benefit from “the fresh perspective undergraduates bring.”

B--How do you involve undergraduates in your research projects?

➢ (1) In activities related to coursework and honors/capstone projects.
   - S/C: Have students help to develop class lectures and assignments that relate to given faculty members’ areas of research interest.
   - S/C: Have faculty members “advise specific groups of students required to undertake a research project such as McNair and Honors students.”
   - S/C: Allow research projects “in which undergraduate students play a leading role” to serve as honors thesis work.
   - D: Teach “a course where there is a collective research project.”

➢ (2) “Hands-on” engagement in research.
   - S/C: “Have students involved in all aspects of … [faculty research] projects from literature searches and reviews, drafting of IRB protocols, … [maintenance of] databases, data collection, entry, editing (cleaning and coding) and analysis, [and] construction of charts and tables.” Also, in some instances, “have students prepare first drafts of conference presentations, develop posters, write abstracts, proofread material, and author manuscripts with support of a faculty advisor.”
   - S/C: Recruit students from other schools/colleges wherein undergraduates (e.g., Psychology majors) “can earn course credits for working on research projects.”
   - S/C: Engage students “as assistants in behavioral laboratory experiments” or have students “participate as subjects of the behavioral experiments run by faculty members.”
   - S/C: Have students create or help with a literature review “by collecting and/or reading secondary sources.”
   - S/C: Involve students in “finding, organizing, and digitizing archival and research documents.”
   - S/C: Have students help with or check translations.
   - S/C: Assign students tasks associated with work on publications, including preparing bibliographies and indexing.
2--What are some successful strategies for incorporating undergraduates into research?

- (1) Activities integrated into or supplementing coursework (including independent study and distinction/honors projects).
  
  - S/C: “Incorporating formal methods training [i.e., preparation for conducting research] into the requirements of … [a] major.”
  
  - S/C: Developing “projects [which] may not be for academic research publications, but will provide stimulating research opportunities for the students,” e.g., “the supply chain group recently formed … [in] partnership with Staples, in which Whitman graduate and undergraduate students will work on research projects to solve some of the supply chain and logistics problems of the company.”
  
  - S/C: Encouraging students to develop thesis projects that are compatible with and/or contribute to given faculty members’ research areas/projects.
D: Offering an “ever-growing Distinction Program, which includes but is not limited to our Honors Distinction students, in which faculty work closely on undergraduate research projects that are usually closely related to work that the faculty supervisor has done or is doing him or herself.” (This program entails “close work with … Distinction students, which takes place either over one or two years of supervised research and writing.”)

D: [Potentially] offering possibilities for “greater collaboration between faculty and undergraduates” within Public Humanities and Digital Humanities. (In particular, “Digital Humanities proceeds though collaborative methodologies which could engage undergraduate participation.” Specific examples: (1) Undergraduates could be involved “in the development of online, digital editions of works of literature,” contributing in various stages “from archival research to digital encoding,” thus gaining “first-hand experience with both archival and textual research skills while mastering technologies of textual encoding.” (2) Sponsorship of participation in the HASTAC (Humanities, Arts, Science, and Technology Alliance and Collaboratory) Scholars program (http://www.hastac.org/scholars/about), currently offered at the graduate level, might be expanded to include undergraduate students.)

D: Having students develop small, manageable research projects as part of formal course work and/or independent studies.

(2) Proactive recruitment of students eager to engage in research.

S/C: Encouraging faculty members to identify motivated students in their classes, “so students are exposed to the faculty’s research interests within the class and are willing to do more.” (“One faculty member suggests identifying ‘hot shot’ sophomore students, as they are around for more than 2 years … [and therefore] could potentially be committed to conduct long-term research projects.”)

S/C: “Recruiting students through various methods, other faculty advisors, academic advisors / internship coordinators.”

D: Basic advertising, i.e., when “some of our experiments simply require more individuals to be involved, making announcements in class can usually generate a few students who are interested in helping out in the lab.”

D: Accommodating students who are interested in research for a variety of reasons, including desires to: conduct independent research; acquire resume-enhancing experience; develop essential qualifications for applying to graduate school programs; become better positioned to compete for scholarships and fellowships; gain skills sought by prospective employers.

D: Tapping into student desire for research experience; providing opportunities for external recognition. (“No strategies necessary to recruit, as students seeking research experience are beating down the doors.” “Our undergrads have presented their research in regional meetings, and have won prizes.”)

(3) Promotion of research activities as prestigious.

S/C: Cultivating initiatives that offer scholarly research opportunities which are viewed as prestigious, e.g., “the Engaged Research Initiative (ERI) proposed by the Whitman Research Committee, the Whitman Leadership Scholars Program, and Honors Capstone
Projects undertaken by Whitman students in the SU Honors Program.” (“It will be stressed that invitation to participate in ERI and the opportunity to receive ERI fellowships will be considered one of Whitman’s highest honors and recognitions.” The ERI would offer incentives to faculty members as well because “participating faculty would be acknowledged annually.”)

- **S/C:** Using an application process to “make participation selective.”
- **D:** “Creating a formal process to select 1-3 majors to work as undergraduate RAs for faculty members on preliminary research or ongoing projects.”

- **(4) Integration of undergraduate students into “real” research projects; creation of infrastructures and environments that are supportive of undergraduate research assistants.**

  - **S/C:** Having undergraduate students work as “volunteer” RAs.
  - **S/C:** Having “students work as assistants in running laboratory experiments,” “typically … [helping] in scheduling participant appointments and administering behavioral experiment subjects.” (“Although the main tasks … are clerical, students say this experience gives them a deeper understanding and appreciation of research.” Similarly, “even though the tasks … are fairly simple and mechanical, … [they] give the students opportunities to learn more about academic research.”)
  - **S/C:** Encouraging undergraduate researchers “to attend lab meetings with the research team to hear about the project development and put their role and contributions in context of the larger project.”
  - **S/C:** “Involving students in the full process so they understand how their work fits, and is of value, to the larger project.”
  - **S/C:** Fostering a good environment for undergraduate researchers. (Examples: Since “faculty time is always limited,” “putting … [undergrads] into research group so that they can interact with graduate students.” Also, organizing events to bring the undergraduates together, both to help them “feel like they belong to a group or a community” and to publicly recognize their research activities.)
  - **S/C:** Developing “vertical research teams where more experienced student researchers can support less advanced/experienced students,” and using “this structure to alleviate the training burden on faculty.” Also, “having GAs to help organize and supervise the undergraduates.”
  - **S/C:** Establishing protocols that are “well-designed/easy to follow.”
  - **S/C:** Offering “a flexible schedule and tasks that allow students to work on their own time, including weekends.”
  - **D:** “Helping undergraduates understand that they are part of a ‘real-world research’ project, not just a lab experience.”
  - **D:** “Pairing undergraduates with graduate student mentors.”
  - **D:** “Dedicating workspace to undergraduate RAs and establishing set work hours each week.”
  - **D:** “Being clear up front about the time commitment for undergraduates involved in research.”
(5) Development of mechanisms for subsidizing undergraduate research activities and compensating undergraduate research assistants for their contributions.

- **S/C:** “Providing credit for students to participate in research.” (Multiple mentions)
- **S/C:** “Adding REU supplements to NSF awards so that we can pay the students for their time.” (“Those faculty members who get NSF grants will usually try to get one or two REUs per award.”) (Multiple mentions)
- **D:** Requiring Honors and Distinction students to take junior-/senior-year seminar courses to prepare them for work on thesis projects and to improve communication skills; allowing students to register for up to 3 credits per semester for research activities.
- **D:** Encouraging “[CA&S] Undergraduate Research Projects that faculty can sponsor for variable credits.” (“Faculty can stipulate the types of student expertise they are seeking, and students can gain research experience for credit without having to worry about ‘payment for services.’”)
- **D:** Paying students for work on research projects out of faculty research accounts, casual wages, etc.

### 3—What are some barriers to doing so?

- **(1) Absence of opportunities for undergraduate students in some types of research / lack of tasks suitable for undergraduate research assistants and/or faculty preference for graduate RAs.**
  - **S/C:** “The struggle to find both meaningful and manageable research tasks for undergraduates.”
  - **S/C:** Challenge, for a faculty member, of “crafting a project that is interesting, valuable, and also not so important that another lab member is … relying on [the outcome].”
  - **D:** Nature of faculty members’ work in certain fields (i.e. “simply not collaborative”).
  - **D:** “Nature of … research” (i.e., “not of a kind that can make use of … [undergraduate student] help very often”).
  - **D:** Tendency to recruit research assistants from a pool of graduate students rather than from the undergraduate population.
  - **D:** Availability of graduate-student assistance. (“I have not involved undergraduates in my research. … I almost always have graduate students, mostly PhD candidates working with me, which is labor intensive already.”)

- **(2) Lack of undergraduate-student awareness of and/or interest in academic research.**
  - **S/C:** Lack of communication about research on campus in general. (“Although Syracuse University is a research university, discussions of research take place only among research active faculty members, and there is very little mention of research in the communication channels with … [larger audiences], such as [at] commencement, new student convocations, etc. Consequently, students spend 4+ years on campus without much awareness of what it means to graduate from a research university and what kind of new knowledge is being produced on campus.”)
(3) Lack of undergraduate preparation for engagement in research activities, in some cases due to curriculum design/sequencing.

- S/C: “Lack of … University-wide tutorials for research-minded students.”
- S/C: “Failure to integrate student research into exciting courses.”
- S/C: The “big gap” between research in the field and the curriculum.
- S/C: Possible curriculum deficiencies. (“Because research methods was dropped from our undergraduate curriculum several years ago, most of our undergraduates need training before they are ready to get deeply involved in research.”)
- S/C: Methods courses being completed later than desirable in programs of study.
- S/C: “Lack of methods and foreign language training among undergraduates.”
- S/C: Lack of student expertise and experience.
- S/C: Undergraduate students’ “lack of skills (strong training/foundation) and understanding … of research methods.”
- S/C: “Lack of research skills required to assist, specifically quantitative skills and experience using various software for analysis including geographic information systems.”
- D: With respect to some research projects, undergraduate students’ inability to “contribute a great deal (they don’t bring enough experience or prior knowledge to the data gathering or analysis).

(4) Limited student availability and concerns about student reliability.

- S/C: Concerns about student reliability and about the quality of student work.
- S/C: Students’ time constraints. (“Students don’t have enough time in their schedules to contribute.” Also, “students underestimate the time that research requires and are overwhelmed.”)
- S/C: Limited student availability. (“Undergrads have many other commitments. When their loads are high, they tend to drop this research activity. Many undergrads are unable/unwilling to devote enough time. Lab work can require chunks of time ranging from 1 hours to several hours/days.”)
- D: “The amount of time … [undergraduate students] are in class and the huge amount of work we’re already asking them to do.” (“I’m sensitive to designing research opportunities for them that are not so onerous that they interfere with coursework.”)

(5) Limited faculty availability AND lack of faculty incentives to serve as undergraduate researchers’ mentors/supervisors.
- **S/C:** Time-consuming nature of working with undergraduates on research projects.
- **S/C:** Limited faculty availability.
  - "Our faculty has very limited time in mentoring undergrads, because they are fully occupied by high teaching load and sponsored research."
- **S/C:** Lack of incentive for faculty to engage undergraduate students in research.
  - "Amount of time PI puts into mentoring is generally not repaid with publishable results." "Compared to teaching courses, research grants, publications, … [mentoring undergraduate research] has not been treated as valuable … As a result, faculty members are reluctant to invest their already very limited time in doing this.")
  - "Independent research related courses … and undergrad research mentoring doesn’t count towards teaching load of the faculty … [although it] takes a lot of faculty time," with some faculty members having 4-5 undergraduates working in their labs at any given time. “Some mechanisms should be developed to count this towards teaching,” especially because some courses offering research opportunities are tuition revenue-generating.
- **D:** Time necessary to train and supervise student research assistants makes “incorporation of … students in a meaningful way… often difficult.”
- **D:** Lack of faculty willingness/incentives to take on undergraduates.
  - “Even for the most structured of these experiences (e.g., the honors program), there are few incentives for faculty to take on the overload effort.”
- **D:** Lack of capacity to keep up with demand.
  - “[We] can’t meet the [students’] demand [to be involved in research] so we send them to other departments or to Upstate or ESF.”

**6) Infrastructure and logistical challenges.**

- **S/C:** “Absence of clear institutionally sanctioned formats;” “institutional barriers.”
- **S/C:** “Lack of adequate space (dedicated computers, phones with privacy and the software necessary to perform the work).”
- **S/C:** Concerns about ensuring safety in laboratory settings.
- **D:** “Fear of violating IRB guidelines” if involving students in interview- or ethnographic-based research. (“The University’s IRB website is daunting and difficult to navigate.”)
- **D:** Lack of dedicated computer/digital lab spaces and technology expertise, need for greater institutional investment and sustained support.
- **D:** Possible lack of “transportation if the research field is off campus.”

**7) Lack of financial support.**

- **S/C:** Challenges of developing ways to reward students for contributions to research work (e.g., not wanting to have them work gratis, on a purely volunteer basis; concern that their work for independent study course credit is insufficiently self-directed).
- **S/C:** Lack of financial support.
  - “When external funding is not available it is difficult to get top notch students without offering pay.”
“No financial support to hire students in the summer or for them to travel to present at conferences and for lab supplies.”

- Cost of lab equipment for undergraduate use.
- A potential solution “would be to offer well-publicized competitive internal grants for which undergraduate students and faculty … [could] jointly apply to support collaborative research projects.”

D: Lack of information about “options … available for using funds to support student research,” i.e., funds that might possibly “come from faculty research accounts, department casual wages, publication subventions in the college, or some other source.”
DATE: April 5, 1994

TO: Syracuse University Senate

FROM: James T. Spencer, Chair, Senate Task Force on Undergraduate Research and Creative Activities

SUBJECT: Report of the Senate Task Force on Undergraduate Research and Creative Activities (URCA)

Enclosed is the final report of the Senate Task Force on Undergraduate Research and Creative Activities. This report represents the culmination of the committee's activities which involved rather intensive discussions and considerations of a wide variety of issues related to the research and creative activities of undergraduates. A hallmark of these undergraduate activities is the development of close faculty-undergraduate interactions that extend beyond the boundaries of the traditional classroom and studio setting. We feel that in many respects undergraduate research and creative activities are the embodiment of what is meant by a student-centered research university and must be incorporated as a central component of the University's mission.

In this report, we propose establishing a strong and visible undergraduate research and creative activities (URCA) program at Syracuse University which would help close the gap between the rhetoric and the reality of a student-centered research university. We, therefore, very strongly recommend and urge that the University Senate approve the report of the Task Force and recommend to the Chancellor that the items proposed in the report be adopted by the University.
REPORT OF THE SENATE TASK FORCE ON UNDERGRADUATE RESEARCH AND CREATIVE ACTIVITIES (URCA)

I. TASK FORCE ORIGIN, CHARGE, AND OPERATION

The Senate Research Committee completed discussions during the 1992-1993 academic year on the status of undergraduate research and creative activities (URCA) at Syracuse University. The committee examined the role and institutional support of these activities on campus. Because of the perceived critical importance of URCA related issues, the committee believed it necessary to expand the scope of the discussions beyond the normal purview of the Senate Research Committee. Therefore, at the April 21, 1993 University Senate meeting, the Senate Research Committee presented a motion to the full Senate to form a University-wide task force charged with exploring these issues more fully. This motion was overwhelmingly approved by the Senate. All colleges and schools at Syracuse University, along with several programs and administrators with interests in undergraduate research and creative issues, were invited to be represented on the Task Force. The membership of the Task Force, with affiliations, is provided below.

During the course of the 1993-1994 academic year, the task force met on numerous occasions to discuss issues related to undergraduate research and creative activities. Included in these discussions was a meeting with Chancellor Shaw (November 17, 1993) to gain his insights and ideas on these issues. During our initial discussions, the Task Force became aware of numerous efforts, both across the Syracuse campus and on a national level, to recognize the central role of and to stimulate undergraduate involvement in research and creative activities. Among these recent URCA-related activities at Syracuse University are the recommendations by both the 1993 Student Leaders Conference and the Honors Council that the support of "undergraduate research become a University priority," the creation of Undergraduate Research Program (URP) offices in several Syracuse colleges, the establishment of "grass-roots" undergraduate research and creative efforts in many departments, and URCA-related discussions at numerous faculty meetings and committees (such as the Arts and Sciences and Engineering faculties and the Senate Research Committee) culminating in the incorporation of these activities in many departmental degree requirements. On a national level, the National Council for Undergraduate Research (NCUR) has seen a tremendous growth since its founding in 1986 and currently sponsors many activities and national meetings for undergraduates. Many thousands of undergraduate students participate in these NCUR National Meetings. In addition, both federal and private funding institutions are redirecting significant portions of their resources toward undergraduate research programs,
including the National Science Foundation, the National Institutes of Health, and the General Electric Foundation, among many others.

These developments, along with efforts to strengthen the academic community at Syracuse, show that it is indeed very timely to consider undergraduate research and creative activities issues now more globally at Syracuse University.

In the following sections of the Task Force's report, we present both the rationale and a specific proposal aimed at providing leadership for, and visibility to, undergraduate research and creative activities at Syracuse University.

### Task Force Membership

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<tr>
<th>Position</th>
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<td>Asst. Dean John Adams</td>
<td>Dean Daan Braverman</td>
<td>College of Law</td>
<td>244 E. I. White Hall</td>
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<td>College of Visual and Performing Arts</td>
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<td>Dean Steven C. Chamberlain</td>
<td>Prof. Mary Louise Edwards</td>
<td>School of Education Commm. Sci. and Disorders</td>
<td>805 S. Crouse Ave</td>
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<td>L.C. Smith College of Engineering &amp; Computer Science</td>
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<td>227 Link Hall</td>
<td>Prof. Tomm J. Finucane</td>
<td>School of Management</td>
<td>Som-Suite 500</td>
</tr>
<tr>
<td>Prof. Sheldon Gilbert</td>
<td>Prof. Sandra Hurd</td>
<td>Honors Program</td>
<td>Bowne Hall</td>
</tr>
<tr>
<td>S.I. Newhouse School of Public Communications</td>
<td>Honors Program</td>
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</tr>
<tr>
<td>Newhouse II</td>
<td>Prof. Jeffrey Katzer</td>
<td>School of Information Studies</td>
<td>Information Studies</td>
</tr>
<tr>
<td>215 University Place</td>
<td></td>
<td>Information Studies</td>
<td>4-206 CST</td>
</tr>
<tr>
<td>Prof. Ronald Mowat</td>
<td>Prof. Thomas Pastorello</td>
<td>Social Work</td>
<td>Brockway Hall</td>
</tr>
<tr>
<td>College for Human Development</td>
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<tr>
<td>Environ. Design/Interiors</td>
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</tr>
<tr>
<td>213 Slocum Hall</td>
<td>Asst. Dean Richard Pilgrim</td>
<td>College of Arts and Sciences</td>
<td>Deans' Office</td>
</tr>
<tr>
<td>Prof. Gary Radke</td>
<td></td>
<td></td>
<td>300 Hall of Languages</td>
</tr>
<tr>
<td>Honors Program</td>
<td>Prof. James T. Spencer</td>
<td>Task Force Chairman</td>
<td>Department of Chemistry</td>
</tr>
<tr>
<td>Honors Suite</td>
<td></td>
<td></td>
<td>2-008 Center for Science and Technology</td>
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<tr>
<td>Bowne Hall</td>
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</tr>
<tr>
<td>Prof. Maureen Thompson</td>
<td>Prof. Jeffrey Stonecash</td>
<td>Maxwell School of Citizenship and Public Affairs</td>
<td>316C Maxwell Hall</td>
</tr>
<tr>
<td>College of Nursing</td>
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<tr>
<td>426 Osstram Ave.</td>
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<tr>
<td>Prof. Maureen Thompson</td>
<td>Vice Pres. Benjamin R. Ware</td>
<td></td>
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<tr>
<td>College of Nursing</td>
<td></td>
<td>Vice President for Research and Computing</td>
<td>3-014 Center for Science and Technology</td>
</tr>
<tr>
<td>426 Osstram Ave.</td>
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</tbody>
</table>
II. RATIONALE

A. The Student-Centered Research University.

Central to our conception of Syracuse University as the student-centered research university is an emphasis on learning. When undergraduate education, graduate education, and faculty scholarship are viewed from an appropriate vantage point, learning becomes a unifying theme for these historically disparate activities. Undergraduate students are then seen as integral members of a community of scholars which also includes graduate students and faculty members. The scholarly learning activities of this community include the creation of knowledge (often called "research and creative expression"), the application of knowledge, the integration of knowledge, and the dissemination of knowledge (often called "teaching"). The degree and nature of participation of undergraduate students, graduate students, and faculty members in learning activities will necessarily vary from person to person and from discipline to discipline; however, our view of the structure of the principal learning processes must be that they constitute a unified whole rather than loose fragments in a weak assemblage.

As we begin to view our educational activities as unified, the labels of undergraduate student, masters student, doctoral student, postdoctoral fellow, assistant professor, associate professor and professor simply become convenient nomenclature for parts of a continuum that begins with the first-year undergraduate student. In this model, the historically opposed and competing activities of teaching and research/creative expression become complementary themes that swell and diminish appropriately as one proceeds along the continuum. Undergraduate research and creative activities (URCA) is a logical and, in fact, necessary feature of the activities of the continuum of scholars participating in this unified community. Indeed, in our conception of the student-centered research university, undergraduate research and creative activities are central and essential.

B. Recruitment.

The opportunity for the participation of undergraduates in the creative life of the University in ways beyond the classroom can be an overwhelmingly powerful recruiting theme. It is ironic that many institutions which have been very successful at using undergraduate research and creative activities for recruiting are liberal arts colleges. Research universities, where research exists in abundance, have been slow to capitalize on this rich opportunity. By emphasizing URCA activities along with other University-wide programs, we can both improve our desirability to prospective students and directly confront the historically damaging view that faculty at research universities are engaged in research to the neglectful detriment of undergraduate student learning.
Furthermore, strong undergraduate research and creative activities clearly attract more highly gifted and talented students to the University. We must work to make our greatest strength as a research university become our greatest strength as the student-centered research university.

C. Retention.

There is no better way to insure retention than to give an undergraduate student individual ownership of part of a creative activity. Although there has been no formal study on the retention of students involved in undergraduate research and creative activities versus the retention of undergraduates generally, the anecdotal evidence from those across the campus already involved in these activities strongly suggests that the retention of undergraduates involved in URCA-type activities is nearly 100 percent.

III. BACKGROUND

A. Paradigm Shift.

In recent years, college-bound students and their parents have developed a conception of research universities that has worked against us and must now be overcome. This conception categorizes research and teaching as faculty activities which compete for faculty time to the detriment of undergraduate education (e.g. Charles J. Sykes, ProfScam, 1988, Regnery Gateway, Washington, 304 p.). Stephen Jay Gould summarized this conceptualization succinctly in an essay, "Mentors and Students" in Wonderful Life (1989, W. W. Norton and Co., NY, p. 139-140):

By the way, this system is largely responsible for the sorry state of undergraduate teaching at many major research universities. A student belongs to the lineage of his graduate advisor, not to the teachers of his undergraduate courses. For researchers ever conscious of their reputations, there is no edge whatever in teaching undergraduate courses. You can do it only for love or responsibility. Your graduate students are your extensions, your undergraduate students are ciphers in your fame. I wish that this could change, but I don't even know what to suggest.

We strongly believe that a paradigm shift away from this conception is already underway and must be hastened. Rather than view faculty scholarship and undergraduate teaching as separate and competing functions, and graduate work as the entry ticket for participation in creative scholarly activities, we should work to include undergraduate students, wherever feasible, in the creative learning activities of scholarship. Otherwise, the rationale for the very existence of research universities becomes increasingly difficult to imagine and logically justify.
It is clear that the nature of undergraduate participation in the research and creative activities of the faculty, and even the degree of such participation, will vary from discipline to discipline and from faculty member to faculty member. Just as the content and methods of the disciplines and fields of study differ widely across the University, so will the character and nature of URCA participation. In the sciences, for example, experimentalists are much more likely to be able to integrate undergraduates into research teams than are theoreticians. In engineering, there will be some tension between research and design. In other parts of the university, the long term struggle to inappropriately force the creative scholarly activities of the faculty into the science and engineering model will be played out again in conceptualizing and implementing URCA activities.

Nonetheless, we believe that it is important to change both the reality and the perception of reality concerning the relationship between undergraduate "students" and "research and creativity" in the student-centered research university so that undergraduates are included within the box labeled "research and creative activities" in the schematic organization of the University's activities.

B. Preexisting Activities at Syracuse University Related to URCA.

It is abundantly clear that every school and college at Syracuse currently has many activities which may be seen as involving undergraduate students in research and creative activities. Some distinctive programs have been formally designated by their colleges and schools as involving specific URCA-type activities. The brief overview descriptions of several of these programs provided here (alphabetically organized) are simply meant to serve as illustrative examples rather than an exhaustive compilation of current URCA-type activities at Syracuse University. Indeed, numerous URCA activities have been ongoing for many years with wonderful successes and achievements without receiving their deserved campus-wide recognition. As part of the proposal presented in this report, we feel that it would be extremely beneficial for these ongoing URCA-activities and related programs to serve as peer models for non-participating undergraduates and to communicate and coordinate with one another concerning their own unique activities.

**Architecture Undergraduate Research** - Individual faculty members have long endeavored to incorporate undergraduate students in their own scholarship and research. As an example, Prof. J. F. Gabriel has associated undergraduates in his research program for the past 18 years and has published jointly with his students on a regular basis.

**Arts and Sciences Undergraduate Research Program (URP)** - This program provides non-classroom educational opportunities for undergraduate students to work closely with faculty members in faculty-generated research projects. The apprenticeship model is featured, and students gain firsthand experience in creative and investigative academic processes.
**Biology Undergraduate Research** - The Biology department has established a very well-developed undergraduate research program in which biology students gain a wide variety of experiences in biological research. The department hosts a number of activities as part of its program including poster sessions and special events. The department also awards prizes for outstanding achievement in undergraduate research. Many participants begin early in their careers and often publish their work in prestigious journals in the field.

**Chemistry Research Experience for Undergraduates (REU)** - The Chemistry department strongly encourages undergraduate participation in research activities within the department and has incorporated research experience into its degree requirements. The department’s REU program is sponsored by the National Science Foundation (NSF) and the General Electric Foundation and provides undergraduate students with fellowships for continuing their research studies during the summer.

**College of Engineering and Computer Science Undergraduate Research Opportunities (URO)** - A wide variety of opportunities are available for undergraduate students to participate in faculty research programs. The college publishes a comprehensive directory of URO activities (appendix) and provides a variety of support for student work.

**College of Visual and Performing Arts** - Numerous URCA-type activities are ongoing within the college and range from student participation in a faculty member's studio work to the extension of more formal instruction and one-on-one tutorials into new and mutually interesting areas of scholarship and creation.

**General Electric Foundation Research Experience for Undergraduates** - The GE Foundation, which has provided significant funds to the University for undergraduate research, recognizes that students who are exposed early in their college experience to research activities and the attendant relationships with faculty members are more likely to pursue the discipline and ultimately consider an academic career. In recognition of this, the foundation has included funding of undergraduate research as an integral part of its Faculty for the Future Program (funded through the Syracuse University Graduate School).

**Solving Program** - The program seeks to create a learning environment where undergraduates from all majors can enhance their problem-solving skills and develop innovative thinking patterns. The students participate in team-project oriented activities sponsored by the program. Each team seeks to create, discover, or invent a solution to a problem posed by a member of the Syracuse University community.

**University Honors Program** - The program offers outstanding students intellectual challenge and curricular enrichment through a wide variety of offerings. Upper division honors is a challenging, coherent course of study planned in consultation with an honors advisor and
culminating during the final year in a thesis project. The thesis project topic may be either student generated or closely related to a specific faculty member's research or creative interests.

C. URCA Activities at Other Institutions.

Comparative information on URCA-type activities at a variety of institutions normally included in Syracuse University's "Peer Group" is provided in the appendix. The majority of these institutions have recognized that undergraduate research and creative activities are central to their missions and are currently in the process of establishing strong, centrally administered URCA Programs.
IV. PROPOSAL

A. Program Mission and Syracuse Signature.

The active involvement of undergraduate students with faculty in the creation of new knowledge and understanding must be a vital component of the educational experience at Syracuse University. The principal goal of an all-University URCA program is to involve undergraduates directly in creative, intellectual, and scholarly explorations outside of the traditional classroom and studio settings. These endeavors augment an undergraduate's educational experiences through activities not otherwise available. A hallmark of these activities is the development of close faculty-undergraduate interactions that extend beyond the boundaries set by credit hours or semesters. Faculty and students working together in a mutual learning process clearly promotes the goals of a "student-centered research university" as no other model can. It emphasizes the common interest of faculty and undergraduates in the enterprise of learning--where research and creative activities are effected by engaging one's discipline through focused interactions with others, working in an attitude of wonder and exploration. The URCA program must aim to promote a wide diversity of pursuits among and between the University's Colleges, Schools, and Programs.

Research and creative activities do not lend themselves to one definition and must be very broadly interpreted to include the fullest range of activities as delineated by individual disciplines. Consistent with the University's mission, all forms of relevant scholarship, creative activity, and professional involvement would be encompassed under the URCA programmatic structure.

A long-term goal of the proposed URCA program (vide infra) is to move from providing and supporting undergraduate student access to research and creative activities toward the expectation that the majority of undergraduates will participate in such activities as part of their "Syracuse Experience." As such, it must be incorporated into the central mission statement of the university and become a Signature Program for Syracuse University. If the URCA Program is to be part of the Signature of Syracuse University, it cannot become merely one of many "opportunities" for students. Instead, it must become an integral and desired part of the undergraduate experience, with the expectation that a sizeable majority of students will participate in URCA prior to graduation. To become a signature program, the URCA program must:

(1) contribute value to the students' educational experience--a value clearly recognized by the students and their parents.

(2) be integrated, as appropriate, into the curriculum of academic majors.

(3) be understood and promoted by the majority of individual faculty members.
have continuous, long-term financial support and public advocacy from high levels of university administration, especially by the Chancellor, the Vice Chancellor, the Vice President for Undergraduate Studies and the Academic Deans.

B. Program Features.

The substantive and educational content of the proposed URCA program depends upon two mutually interdependent and cooperating structures - - local-unit groups, offices, and activities providing the substantive "hands-on" opportunities and guidance for their own or other appropriate undergraduate students and a University-wide office providing leadership, oversight, and coordinating activities.

(1) **Local Activities, Local Control:** Individual schools and colleges will be expected to propose, implement, and run their own distinctive URCA satellite programs which, while adhering to the general principles and purposes of the University-wide program, would reflect the unique subject matters, pedagogical styles, student needs, and resources of that unit. What will constitute appropriate activities and opportunities for students, and just how such opportunities will be administered and delivered, will be left to these units to guide - subject, of course, to review and approval by the University's URCA program. Generally speaking, such local programs will provide opportunities for students to work closely with faculty in specific "research and creative activities" outside and/or beyond such regular educational opportunities as already exist in or through the classroom experience.

(2) **The University-wide URCA Office:** While the administrative and operational structure of this office is addressed elsewhere in this proposal, it should be understood that an all-University program will contribute centrally and substantively to the general mission of the program by providing its own kind of activities and support in pursuit of these educational goals. In addition to critical oversight and coordinating activities designed to facilitate the local unit programs, it might, for example, sponsor and carry out the following kinds of activities for the benefit of all students and units involved:

- Define and coordinate an annual University-wide "festival" of undergraduate research and creative activity at Syracuse University.
- Provide travel support for selected undergraduates to attend national meetings (such as the NCUR or discipline-specific meetings) to present the results of their work.
- Provide visibility and leadership unity for program activities and participants.
• Provide limited funds for unusual expenses associated with student work with faculty mentors.
• Provide a clearinghouse for internal and external opportunities for undergraduate involvement, including internships, scholarships, and fellowships.
• Provide a method for enhancing communication and links among faculty and students.
• Promote intercollege collaborations and joint projects (i.e., Engineering-Architecture, Arts and Sciences-Law, etc.).
• Promote and publicize student activities to encourage high levels of student scholarship and to promote successful role models for other undergraduate students.
• Participate in enhanced recruiting and retention efforts of talented and gifted undergraduate students.

C. Program Benefits.

In addition to the primary benefits of such a program, indicated in the mission statement above, a number of other tangible benefits would be expected to accrue directly to the University from a strong URCA program. These benefits would include, among many others:

(1) enhancing the recruiting and retention of academically strong and motivated students. A strong and visible URCA program would be expected to attract more highly gifted and talented students to the University because of the opportunities the program would offer.

(2) identifying and securing external resources in support of students and their mentors from a variety of agencies and institutions.

(3) fostering a sense of a "learning-centered community."

(4) improving opportunities for URCA participants in graduate studies. Recruitment of these gifted students into our own graduate programs would also be significantly improved through the close faculty-undergraduate interactions established during their URCA work.

(5) providing career choice and career experience information to undergraduate students.

(6) promoting a campus wide "academic" atmosphere.

(7) enhancing student confidence.

(8) supporting close faculty-student interactions and collegiality.

(9) developing and furthering faculty research interests and activities.
D. Program Organization.

To accomplish the objectives outlined above, we believe that a strong University-wide URCA Program must be established and administered through a centralized office that provides direction and coordination to the decentralized implementation of URCA experiences. Specifically, we propose that:

1. A new position, the Director of URCA, be created. The director will report to the Vice President for Undergraduate Studies and maintain close communication with the Vice President for Research and Computing. The Director's primary responsibilities are to
   - encourage the development of URCA in all academic units.
   - publicize and promote URCA both internally and externally.
   - provide leadership for the all-University URCA Program.

2. Each school and college shall be responsible, in concert with the central URCA Program, for implementing their own local URCA Programs by
   - defining URCA opportunities as they are appropriate for that academic unit.
   - planning URCA targets, guidelines, and objectives (including how many students within what time frame).
   - revising program requirements to integrate URCA fully into the curriculum and major/minor requirements as appropriate.
   - identifying the implications of URCA on faculty load, compensation, responsibilities, and reward structures.

E. Program Implementation and Implications.

Central to making URCA part of the Signature of Syracuse University is a mandate that it will be implemented and promoted. To this end, the Chancellor, Vice Chancellor, and Vice President need to ensure that URCA is enacted in each school and college under the guidance of the URCA Director. The key to the development of a strong and viable URCA program is establishing close relationships between the central URCA program and the locally run satellite operations within each school and college. Working within these local contexts, the URCA program would be initially expected to work with each school and college to determine the extent of undergraduate research and creative activity currently occurring, to identify additional URCA opportunities for students, and to develop "outreach" and peer-awareness programs both independently and in concert with the University-wide URCA Office (such as the University-wide URCA festival,
etc...). Working from these foundations, the program would then participate in developing policies and procedures for implementing a more extensive and integral URCA program, including matters relating to faculty load and reward, quality assurance, oversight of URCA experiences, and URCA's relationship with independent study, internships, and other appropriate programs and activities. Included in these kinds of URCA programmatic activities would be decisions, in concert with the schools and colleges, on appropriate targets for URCA growth, an expansion of the URCA "outreach" and peer-awareness programs, and working toward revising program requirements to integrate URCA fully into the curriculum and major/minor degree requirements as appropriate. Finally, after these initial stages of the URCA program implementation, the centralized program would be then expected to work with schools and colleges to refine and expand URCA opportunities and increase the size of the URCA program until a majority of our students participate in it at least once prior to graduation.

As part of the URCA program implementation, it would be expected that the program should develop detailed information specifically focused upon student and faculty URCA involvement, faculty compensation issues, and retention and recruiting of students relative to the program. From these data, it may best be assessed how effective the program is in meeting its stated goals and how best to improve the functioning of the overall program.

The immediate real financial costs are those to support URCA programmatic operations (including funds for salary, benefits, supplies, travel, and special events). Although these costs are the most immediate and tangible, they are not likely to be the most expensive. The long-term cost of URCA will depend upon how this program is integrated into the educational experience.

A number of critically important issues will have to be faced in the early implementation of an URCA program. These issues, however, we feel must be handled on a decentralized, local level rather than in any centralized form. Among the most important issues faced by each college and school will be if and how faculty members are to be directly compensated for participating in the program. Included in these discussions are how course loads may be changed within academic units and will URCA participation become important in faculty tenure, promotion, and salary decisions.

F. Conclusion.

We feel strongly that through the implementation of the guidelines proposed above, Syracuse University now has a unique opportunity to establish itself as premier among research universities as the student-centered research university.
Questions Posed in the Survey of "Peer Institutions" Concerning Undergraduate Research and Creative Activities.

1. Is there a University-wide URCA (or similar) program? If so, what budgetary and administrative support is provided (is there a separate budget for the program or is it part of other budgetary units, does the program have a support staff, etc...)?

2. Where and how is the program housed (reporting lines, structural administrative setup, etc...).

3. Are there other programs housed with the URCA program? If so, which programs.

4. How narrowly or broadly is the program defined:
   a. types of activities
   b. are internships and community service included
   c. are the projects student originated or only faculty originated

5. Do different academic units define their own activities and involvements under the URCA umbrella? How does each unit define its role and activities? How is the diversity handled by the URCA "central" program?

6. What incentives or rewards are provided for faculty and students to become involved? (How are the faculty compensated; (1) course load reduction, (2) credit for tenure and promotion, (3) raises, (4) other). Do students involved in the program receive credit hours, stipends or both for their work?

7. Is student credit through a departmental "number" or through a University-wide URCA "number"?

8. How many students and faculty are involved in the program. What is the size of the program relative to the total undergraduate and faculty populations.

9. What qualifications (criteria) have been established for involvement in the program (for both students and faculty)? How do students become involved in a URCA project (first through a department, through URCE publicity, etc...)?

10. For graduate institutions, what is the relationship between graduate research activities and programs and the URCA related activities. What special concerns or problems are encountered at these institutions.

11. General comments (any general comments or additional information which you or they might offer regarding their programs). Please ask them to send any brochures or other written materials on their program which might be available.
<table>
<thead>
<tr>
<th>Item</th>
<th>State Univ. of New York, Albany</th>
<th>Bates College (Lewiston, Maine)</th>
<th>Syracuse University</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (Univ.-Wide Prgm)</td>
<td>No Univ. Wide Program, however, there is a program for graduate students which involves undergraduates in a scientist's research (science teaching).</td>
<td>4 specific programs that promote undergraduate research and coordinated by the Office of the Dean of Faculty. Student research programs continue to be rapidly expanded.</td>
<td>No Univ. Wide Program, although specialized programs do exist in some schools and colleges.</td>
</tr>
<tr>
<td>2 (Prgm Location)</td>
<td>Program in item (1) housed in the College of Arts and Sciences and reports to the Dean</td>
<td>Office of the Dean of Faculty works with the advise and consent of a committee of faculty representing the college's three divisions</td>
<td>Left to individual units without overall coordination</td>
</tr>
<tr>
<td>3 (Joint Prgms)</td>
<td>None</td>
<td>None</td>
<td>None, although the Honors Program and several majors around campus does require a thesis</td>
</tr>
<tr>
<td>4 (Prgm Definitions)</td>
<td>Defined by individual departments with programmatic flexibility given to faculty members</td>
<td>(a) most majors and all Honors students are required to do a thesis, typically a research project with a faculty member. (b) Science undergraduate research is funded by a $900K (5 yr) grant. (c) Additional funding available through other grants</td>
<td>Defined by individual units</td>
</tr>
<tr>
<td>5 (Prgm Diversity)</td>
<td>Each program operates autonomously</td>
<td>Each program operates autonomously</td>
<td>Faculty do not receive course load reductions; Undergraduates receive credit or stipend (but usually not both)</td>
</tr>
<tr>
<td>6 (Incentives)</td>
<td>Faculty receive course load reductions; TA receive academic credit Undergraduates receive credit</td>
<td>Faculty and students receive summer stipends under funded research proposals. Faculty receive no load reduction.</td>
<td></td>
</tr>
<tr>
<td>7 (Credit)</td>
<td>Credit by department</td>
<td>Credit by department</td>
<td>Credit By department</td>
</tr>
<tr>
<td>8 (Size)</td>
<td>15 faculty and 100 students (representing approximately 3% and 0.5% of their respective groups)</td>
<td>60 students and approx. 60 faculty participate in funded programs. Many more in credit &quot;driven&quot; activities.</td>
<td></td>
</tr>
<tr>
<td>9 (Qualifications)</td>
<td>Selected by Departmentally established criteria</td>
<td>Students and faculty are selected by their departments using standard (established) criteria (no required relationship for participation to GPA, financial need or diversity)</td>
<td>Defined by individual units</td>
</tr>
<tr>
<td>10 (Grad. Relations)</td>
<td>Only grad. students are directly involved in research (serve as role models for undergraduates)</td>
<td>No graduate students at institution</td>
<td>None</td>
</tr>
<tr>
<td>11 (Other Comments)</td>
<td>&quot;universal&quot; support on campus</td>
<td>An important issue currently is faculty load relief and/or financial compensation for thesis supervision</td>
<td>T. Pastorello interviewing Mr. Gary Sanders, Director, Office of Research</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>T. Pastorello interviewing Ms. Kerry O'Brien, Asst. Dean of Faculty for Research</td>
</tr>
<tr>
<td>Item</td>
<td>University of Pittsburgh</td>
<td>University of Minnesota</td>
<td>University of Rochester</td>
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</tr>
<tr>
<td>1 (Univ.-Wide Prgm)</td>
<td>(a) Chancellor's undergraduate scholarship for research provides few dozen financial awards to students. (b) Honors students strongly encouraged to participate in research. (c) Other students funded through standard grants.</td>
<td>Strong Centralized Program (Undergraduate Research Opportunities Program, UROP)</td>
<td>Strong Centralized Program with a Director of Undergraduate Research</td>
</tr>
<tr>
<td>2 (Prgm Location)</td>
<td>Relatively decentralized operations</td>
<td>Office of the Vice President for Arts, Sciences and Engineering. Each college or school has its own UROP Coordinator</td>
<td>Provost</td>
</tr>
<tr>
<td>3 (Joint Prgms)</td>
<td>Other Chancellor's awards for faculty teaching and research</td>
<td>None</td>
<td>None, although the Honors Program does require a thesis</td>
</tr>
<tr>
<td>4 (Prgm Definitions)</td>
<td>Research is more narrowly defined to &quot;traditional&quot; roles</td>
<td>Defined by individual departments with programmatic flexibility given to faculty members</td>
<td>Defined by individual departments with programmatic flexibility given to faculty members</td>
</tr>
<tr>
<td>5 (Prgm Diversity)</td>
<td>Each unit/sponsor defines research</td>
<td>Each unit/sponsor defines research</td>
<td>Each unit/sponsor defines research</td>
</tr>
<tr>
<td>6 (Incentives)</td>
<td>No financial or load reduction compensation for faculty. Students on Chancellor's undergraduate scholarship (usually summer) do not receive credit. Other students, including Honors students, receive credit for their research experiences.</td>
<td>No financial or load reduction compensation for faculty. Approximately 300 students per year are centrally funded, some funded off of individual research grants, and a relatively large number of others receive only credit.</td>
<td>No financial or load reduction compensation for faculty. Students receive credit</td>
</tr>
<tr>
<td>7 (Credit)</td>
<td>Credit by department</td>
<td>Credit by department</td>
<td>Credit by department</td>
</tr>
<tr>
<td>8 (Size)</td>
<td>several hundred participants</td>
<td>4,000 students in the 23 participating colleges on the Univ. of Minnesota Campus</td>
<td></td>
</tr>
<tr>
<td>9 (Qualifications)</td>
<td>Chancellor's undergraduate scholarship recipients write proposal which is judged by university-wide committee. Otherwise no formal requirements.</td>
<td>Centralized application process</td>
<td></td>
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<tr>
<td>10 (Grad. Relations)</td>
<td>No graduate school at Pittsburgh</td>
<td>Informal, since undergraduates frequently work with graduate students as part of their projects</td>
<td></td>
</tr>
<tr>
<td>11 (Other Comments)</td>
<td>New Chancellor has spoken a great deal about getting more undergraduates involved in research. Strong encouragement but additional support has not yet been established.</td>
<td>Publishes large information publicity on program. Supports a wide variety of student &quot;research&quot; activities.</td>
<td>J. Adams interviewing Dr. J. Ramsey, Director of Undergraduate Research</td>
</tr>
<tr>
<td>J. Katzer interviewing Dr. R. Diehmick, Assoc. Provost for Research</td>
<td>S. Hurd</td>
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<tr>
<td>Item</td>
<td>University of Michigan</td>
<td>University of Iowa</td>
<td>Cornell University</td>
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<tr>
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</tr>
<tr>
<td>1 (Univ.-Wide Prgm)</td>
<td>Strong Centralized Program (Undergraduate Research Opportunities Program, UROP) budget of $400K per year and is supplemented by external grants (FIPSE, Hughes, Mich. Minority Student Retention Program, etc...)</td>
<td>There is a University goal of strongly encouraging undergraduate research &quot;Develop programs for all colleges and departments that involve qualified undergraduates in research, scholarship or creative activity&quot; (1994 Strategic Plan) (a) Office of Student Services provide scholarships to top 10% of students to spend in research experiences. (b) External grants often include undergraduate research support.</td>
<td>Strong Centralized Program with full time director and support staff. The program has a budget to support expenses associated with student projects, but the students do not (usually) get paid.</td>
</tr>
<tr>
<td>2 (Prgm Location)</td>
<td>None, although the Honors Program does require a thesis</td>
<td>All-University program, although its formally housed in the College of Arts and Sciences</td>
<td></td>
</tr>
<tr>
<td>3 (Joint Prgms)</td>
<td>None</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>4 (Prgm Definitions)</td>
<td>Defined by individual units and individual faculty members</td>
<td>Broad definition including &quot;creative&quot; experiences but not internships or community service. Usually faculty initiated.</td>
<td>Defined by individual units and individual faculty members</td>
</tr>
<tr>
<td>5 (Prgm Diversity)</td>
<td>Each unit/sponsor defines research</td>
<td>URCE Defined across the entire campus</td>
<td>Each unit/sponsor defines research</td>
</tr>
<tr>
<td>6 (Incentives)</td>
<td>Program linked to faculty advising, with peer advisors carrying some of the 'burden' of the program. Professors get up to $300 per project. Undergraduates receive either only credit or stipend and credit.</td>
<td>No financial or load reduction compensation for faculty. Approximately top 10% of students per year are funded. Other students do not receive credit.</td>
<td>Faculty do not receive course load reductions; Undergraduates receive credit or stipend (but usually not both)</td>
</tr>
<tr>
<td>7 (Credit)</td>
<td>University wide course (UGR 280)</td>
<td>No academic credit given.</td>
<td>Credit by department</td>
</tr>
<tr>
<td>8 (Size)</td>
<td>500 centrally funded positions available per year</td>
<td>200-300 undergraduates per year working with 90-100 faculty.</td>
<td></td>
</tr>
<tr>
<td>9 (Qualifications)</td>
<td>Students selected competitively through an interview process</td>
<td>No criteria for faculty involvement. Students are selected by their departments using standard</td>
<td></td>
</tr>
<tr>
<td>10 (Grad. Relations)</td>
<td>None</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>11 (Other Comments)</td>
<td>There are 20 discussion sections connected to the program and run by peer advisors (the UROP director oversees these sections).</td>
<td>No tension between graduate and undergraduate research activities except that the undergraduate students are often &quot;used&quot; improperly, doing menial tasks.</td>
<td>The program sponsors a newsletter and occasional forums for student presentations or their work. The office also coordinates information for summer research programs</td>
</tr>
</tbody>
</table>

J. Adams interviewing S. Gregerman, Director of the Undergraduate Research Opportunities Program, UROP

J. Katzer interviewing Dr. Leo Davis, Associate Provost

R. Pilgrim
<table>
<thead>
<tr>
<th>Item</th>
<th>S.U.N.Y. Stony Brook</th>
<th>Univ. of Connecticut</th>
<th>Univ. of Illinois</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (Univ.-Wide Prgm)</td>
<td>All University Program (Undergraduate Research and Creative Activities, URECA) with an independent budget, office, director and support staff (all full-time), etc...</td>
<td>No Univ. Wide Program, although specialized programs do exist in some schools and colleges.</td>
<td>No Univ. Wide Program, although specialized programs do exist in some schools and colleges.</td>
</tr>
<tr>
<td>2 (Prgm Location)</td>
<td>Office of Undergraduate Studies</td>
<td>Left to individual units without overall coordination</td>
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</tr>
<tr>
<td>3 (Joint Prgms)</td>
<td>The Office of Undergraduate Studies also handles other programs such as internships, mentoring, Honors, etc...</td>
<td>None, although several majors around campus does require a thesis</td>
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</tr>
<tr>
<td>4 (Prgm Definitions)</td>
<td>The program defines their activities relatively narrowly with students being &quot;apprentices&quot; working on faculty research.</td>
<td>Defined by individual units</td>
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<td>5 (Prgm Diversity)</td>
<td>URECA provides database, budgetary support, publicity, contracting/grading mechanisms, etc. The &quot;front lines&quot; of this program lie in the hands of the faculty advisors.</td>
<td>Each program operates autonomously</td>
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<td>6 (Incentives)</td>
<td>Faculty can get some expense funds but generally do not receive course load reductions; Undergraduates receive credit or stipend (but usually not both)</td>
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<td>7 (Credit)</td>
<td>The program has its own credit-bearing course numbers</td>
<td>Credit By department</td>
<td>Credit By department</td>
</tr>
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<td>8 (Size)</td>
<td>approx. 10% of students</td>
<td>Defined by individual units</td>
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<tr>
<td>9 (Qualifications)</td>
<td>Students must generally have a 2.7 GPA to qualify. Other requirements depend on faculty advisor</td>
<td>Defined by individual units</td>
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<tr>
<td>10 (Grad. Relations)</td>
<td>Graduate students are not normally involved although advanced grad. students may sponsor a project</td>
<td>None</td>
<td>None</td>
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<td>11 (Other Comments)</td>
<td>Supports an annual &quot;Research Symposium&quot; with presentations of work and awards</td>
<td>S. Chamberlain</td>
<td>S. Chamberlain</td>
</tr>
<tr>
<td></td>
<td>R. Pilgrim</td>
<td>S. Chamberlain</td>
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</table>
Table 1. Institutional Undergraduate Research and Creative Expression Programs (Con't)

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<td>11 (Other Comments)</td>
<td>S. Hurd</td>
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