

UNIVERSITY OF CALIFORNIA

OFFICE OF THE PRESIDENT

TASK FORCE ON UNIVERSITY-WIDE RESEARCH PRINCIPLES, PROCESSES AND ASSESSMENT

REPORT TO THE VICE PRESIDENT OF RESEARCH AND GRADUATE STUDIES

JUNE 2012

BACKGROUND AND INTRODUCTION

In Fall 2011, the Vice President of Research and Graduate Studies convened a Task Force on the University-wide Research Principles, Processes and Assessment (PPA Task Force) and charged the group with examining the current principles and processes that guide UCOP-funded research programs, and recommending a comprehensive framework to guide future decision-making and assessment of UCOP research investments. The task force was charged with re-examining the purpose of investing in universitywide research, the principles that guide those investments, the processes for decision making and evaluation, and the objectives and measures we use to evaluate research investments when considering whether or not to initiate or continue funding. The task force was asked specifically to set aside examinations of any specific programs, projects, or areas of research.

The PPA Task Force was a joint effort between UCOP, Academic Senate and campus administration. Membership was comprised of representatives from the Office of the President, and the full membership of the University Committee on Research Policy (UCORP) and the Council of Vice Chancellors for Research (COVCR). The task force was convened in late fall of 2011 and took several months to discuss these complex and difficult questions. Monthly discussions were held together as a group (by videoconference), as well as within the monthly meetings of the constituent subgroups which comprised our membership (UCORP, COVCR). A drafting workgroup was formed, with representatives from each constituent subgroup (UCOP, UCORP and COVCR) to help put words to the ideas of the group and produce draft proposals and recommendations for consideration and refinement by the greater task force membership.

The PPA Task Force is pleased to transmit the following report to the Vice President in response to its original charge. These recommendations reflects a good deal of work, discussion and debate over several months, not only among task force members, but also among the staff at the Office of the President who supported this work, and the many individuals from the campus research community who provided advice and input.

The task force appreciates the opportunity to provide input on a topic of such importance to the health of the University of California. We hope that our collective efforts will achieve lasting and effective change in the ways we envision, implement and assess the research investments we make together as a University.

PPA Task Force

JUNE 2012

PPA TASKFORCE MEMBERS:

Co-Chairs:

John Crawford, Chair of the University Committee on Research Policy

Jenny Gautier, Deputy to the Vice President of Research and Graduate Studies

Council of Vice Chancellors for Research:

Graham Fleming, Vice Chancellor for Research, UC Berkeley

Harris Lewin, Vice Chancellor for Research, UC Davis

John Hemminger, Vice Chancellor for Research, UC Irvine

James Economou, Vice Chancellor for Research, UC Los Angeles

Sam Traina, Vice Chancellor for Research, UC Merced

Charles Louis, Vice Chancellor for Research, UC Riverside

Sandra Brown, Vice Chancellor for Research, UC San Diego

Susanne Hildebrande-Zanki, Associate Vice Chancellor for Research, UC San Francisco

Michael Witherell, Vice Chancellor for Research, UC Santa Barbara

Bruce Morgan, Vice Chancellor for Research, UC Santa Cruz

David Clark, Los Alamos National Laboratory

Edward Turano, Lawrence Berkeley National Laboratory

John Knezovich, Lawrence Livermore National Laboratory

University Committee on Research Policy:

Michael Kleeman, Vice Chair, UCORP

Michael Tarter, UC Berkeley

Leslea Hlusko, UC Berkeley (alternate)

Sally McKee, UC Davis

Hugh Roberts, UC Irvine (Fall 2011, Spring 2012)

James Brody, UC Irvine (Winter 2012)

Timoth Tangherlini, UC Los Angeles

Mike Cleary, UC Merced

Robert Clare, UC Riverside

Frank Wuerthwein, UC San Diego

Shlomo Dubnov, UC San Diego (alternate)

Ralph Marcucio, UC San Francisco

Srikantan Nagarajan, UC San Francisco (alternate)

Jianwen Su, UC Santa Barbara

Scott Oliver, UC Santa Cruz

Greg Wiley, Graduate Student Representative

Sabrina-Anne Wu, Undergraduate Student Representative

UC Office of the President:

Michael Reese, Associate VP-Business Operations

Jan Corlett, Chief of Staff, Academic Affairs

Mary Croughan, Executive Director, Research Grants Program Office

Kathleen Erwin, Director, UC Grants

University-wide Research Funding Principles, Process and Assessment

Contents

- I. Report Overview 1
- II. Rationale for Investment in Systemwide Research..... 1
 - 1. Principle #1: Act as one system of multiple campuses to enhance UC’s influence and advantage..... 2
 - 2. Principle #2: Promote efficient inter-campus collaborations and systemwide economies of scale..... 2
 - 3. Principle #3: Serve the State of California. 2
- III. Proposed Process for Systemwide Research Funding 2
 - A. Glossary of Terms..... 2
 - B. Background, Objectives and Scope 2
 - C. General Constraints and Requirements 3
 - 1. Availability of Funding 3
 - 2. Eligibility of Programs or Initiatives for Systemwide Funding..... 3
 - 3. Applicability of the Proposed Process 3
 - D. Description of Proposed Processes 3
 - 1. Roles and Responsibilities..... 3
 - 2. Group Recommendations..... 4
 - 3. Program Assessments and Evaluation 4
- IV. Assessment Framework 4
 - Appendix A: Recommended UC Portfolio Review Group Charge 7
 - Portfolio Review Group Membership 7
 - Portfolio Review Group Officers 8
 - Portfolio Review Group Officers 8
 - Responsibilities of Portfolio Review Group Officers 8
 - Meetings 8

I. Report Overview

The UC Office of the President (UCOP) provides limited funds to support UC-wide programs and initiatives across all fields of scholarship that might benefit from collaborative work. These UC-wide investments can range from small initiatives that reach across campuses to combine ideas, expertise or resources, to large shared-infrastructure projects that can leverage UC's influence and resources to benefit research throughout the system. With ten campuses, five medical centers, and over twenty-five thousand faculty and research employees, UC can launch and advance unique research efforts that extend well beyond a single campus or university's capabilities.

To help guide UC-wide research investments and ensure these systemwide funds are successful in advancing the University's research goals, it is incumbent upon UCOP to establish a mature framework to carefully evaluate both the overall and relative merits of its investments, and to help make decisions and plans for any future university-wide research initiatives.

The purpose of this document is to detail the principles, process and metrics for assessment that will guide the investment of university-wide resources in research at the University of California. This includes:

1. Providing **clear guiding principles** to:
 - Define the purpose and scope of systemwide research funding, and
 - Describe the benefits of systemwide research funding and how its purpose differs from campus-funded research objectives.
 - This document will NOT recommend specific areas for university-wide funding.
2. Defining a **rigorous process** to guide and periodically review UC-wide research investments, in order to:
 - Evaluate new opportunities, and
 - Decide which UC-wide research programs to initiate or continue, and
 - Determine when and how to transition programs to other sources of funding, in order to allow room for new investments.
 - This document will NOT recommend specific programs or projects for funding or for elimination.
3. Identifying a list of high-level **objectives and measures**, both quantitative and qualitative, by which UCOP can assess (and compare) any UC-wide or multicampus program, initiative or investment. If successful, a well-implemented assessment framework will provide the following benefits:
 - Provide mandatory and comprehensive assessments of UC-wide research which can be compared across all disciplines;
 - Provide transparency and accountability for systemwide expenditures on research;
 - Provide practical information and benchmarks for programs seeking systemwide funding;
 - Inform systemwide funding allocations, budgeting and strategic planning;
 - Advance programs that deliver benefits to the UC system and to California above and beyond what a single campus can accomplish.

II. Rationale for Investment in Systemwide Research

Each UC campus has a unique and competitive research enterprise that is responsive to its faculty and students, and to its sponsors and stakeholders in research. What do UC-wide research investments have to add to these campus

investments, and how do they differ from what is funded by the campuses directly? In addition to the objective of supporting research of the highest quality and impact, the following three principles define the goals and purpose that drive and distinguish UC-wide research investments.

1. Principle #1: Act as one system of multiple campuses to enhance UC's influence and advantage.

With ten campuses, three national laboratories, state-wide resources and networks, the UC system offers researchers access to opportunities and a competitive advantage that a single campus cannot provide on its own. Acting as a network of multiple campuses, UC can invest in efforts that bring the best and most diverse minds together to define challenges, secure funding, and solve significant problems. This provides more opportunities for UC's world-class faculty and creates larger and stronger collaborative resources and networks that can enhance the entire research community.

2. Principle #2: Promote efficient inter-campus collaborations and systemwide economies of scale.

Finding ways for UC researchers and administrators to cross campus boundaries and work together effectively is a key goal of UC-wide investments. Not only does this generate energy and ideas among UC researchers across the system, but it leads to shared innovation and efficiencies in how we conduct and manage research, resulting in savings or financial gains that can be reinvested in UC-wide research.

3. Principle #3: Serve the State of California.

As California's research university, we implement research on behalf of the state in a fair and impartial basis. UC research has a unique capability to address many of the greatest challenges facing California today. UC seeks to create and grow industries that support California regional economies and to educate a culturally literate, knowledgeable workforce that will continue to lead the growth of California and optimize the State's return on its investment in UC.

III. Proposed Process for Systemwide Research Funding

A. Glossary of Terms

- The **Systemwide Research Portfolio** describes all research and graduate research efforts funded through the UC Office of the President.
- A **Program** is a coordinated set of projects undertaking related research or fulfilling a common theme such as multi-campus research.
- An **Initiative** is a research effort that is limited in time or scope. Initiatives may become Programs if they become funded on an extended basis.
- A **Project** describes a time-limited, focused research undertaking, generally funded by a research grant.

B. Background, Objectives and Scope

The UC Office of the President (UCOP) provides limited systemwide funds for the support of UC-wide research programs and initiatives. These investments range in size from small seed funds that encourage planning or networking in new or emerging fields, to larger development grants that can launch or develop successful collaborations or initiatives, to multi-million dollar investments over multiple years that support large-scale initiatives or shared-infrastructure projects that can benefit research throughout the system. Each investment may differ widely in scope, scale and objectives, as well as in fields of research or levels of campus involvement. These investments should align with the Principles outlined in Section II above.

UCOP manages several research programs directly. Other funds are sent directly to UC campuses and managed by local programs. For these campus-managed funds, UCOP maintains an obligation for regular program oversight and review.

The following sections propose a process to advise the Vice President for Research and Graduate Studies on how best to align UC's research investments with the Principles outlined in Section II above, and how to continually assess, adjust and revitalize those investments over time.

C. General Constraints and Requirements

1. Availability of Funding

Commitment of systemwide funds to support UC-wide research programs and projects is contingent upon availability of resources. UCOP will determine availability of systemwide funds on an annual basis.

2. Eligibility of Programs or Initiatives for Systemwide Funding

In order to qualify for systemwide research funds, programs and initiatives should preferably:

- Exemplify at least two of the principles of UC-wide research outlined in this document; and
- Demonstrate meaningful collaborations between UC campuses or affiliated national labs. See assessment for additional details on collaborations.

3. Applicability of the Proposed Process

The process proposed below will apply to all research and graduate research efforts which receive funding through the UC Office of the President.

D. Description of Proposed Processes

1. Roles and Responsibilities

The **Vice President** of Research and Graduate Studies has oversight for systemwide-funded programs and initiatives, and advises the President on the effectiveness of those research investments in promoting the overall quality and welfare of UC research.

To assist the Vice President in maintaining a vital and dynamic systemwide research portfolio, the Vice President will convene a **Portfolio Review Group** (PRG) to advise him or her on the size, shape and quality of current UC-wide research investments, and make recommendations for new priorities or directions. See **Appendix A** for a proposed charge which includes details on the group's role and operations, and a discussion of its make-up and governance.

The PRG will be asked to carefully review materials on the systemwide research portfolio and individual programs and initiatives. Materials will be assembled by UCOP staff from internal and external sources, and from information provided by the programs. The PRG may request additional information or input, as needed. Materials may include:

- Summaries of systemwide research investments prepared by UCOP analysts;
- Annual reports or program evaluations, issued by programs or initiatives;
- Reports from External Reviews (when applicable);
- White papers (internal or external to UC) analyzing or forecasting the potential for new areas of research;
- Other materials or information, as needed.

Directors of systemwide-funded programs and initiatives are responsible for providing annual reports to the Vice President, describing the financial vitality, scientific quality of the program, key program goals and accomplishments and how the program or initiative demonstrates the three Systemwide Research Principles (see Section II). Programs may be subject to a periodic external review, depending upon the size and nature of the investment.

2. Group Recommendations

Portfolio Review Group recommendations will be used throughout the year to guide the Vice President in making fair and transparent recommendations and funding decisions, and will assist program directors in the strategic planning and management of their programs.

Recommendations will help guide:

- The development of requests for proposals for current or new funding opportunities;
- Levels of investment in current programs and initiatives;
- The assessment of new funding opportunities or investments when funds become available.

3. Program Assessments and Evaluation

Systemwide Research Portfolio Review. All ongoing funding commitments will be reviewed on an annual basis by the Portfolio Review Group to ensure that investments are aligned with systemwide funding principles (detailed in Section II) and that the systemwide research portfolio is well-balanced according to its size and focus of funding.

Programs must provide an annual report, describing the full program budget, sources of funding, scientific quality of the program, key program goals and accomplishments and how the program or initiative demonstrates the three UC-wide Research Principles (see Section II). Supplementary information may be requested by the Portfolio Review Group.

Individual Program Review. Programs receiving ongoing funding will also be rigorously reviewed once every five years by a panel of experts in a two stage process.

During the first stage, a Scientific Review Committee will evaluate the quality of the science or the quality of the research produced. Maintaining high quality science or research is a minimal requirement for continued inclusion in the UCOP Research Portfolio.

In the second stage, the Portfolio Review Group will review the program to: (a) assess whether the program is meeting all systemwide requirements; (b) consider how well aligned programs goals and accomplishments are with systemwide funding principles, and (c) determine the opportunity cost of continuing ongoing funding commitments.

Areas of Priority for Future Research Funding. In addition to reviewing ongoing funding commitments, the PRG will be asked to assess new research opportunities or directions for funding. This includes assessing the opportunity cost of current research investments against new proposals, and making recommendations to help guide new investments. The PRG may make recommendations to fund specific emerging or critical fields of research, research types or categories requiring more support (such as graduate studies or research computing), or specific programs where appropriate. Whenever possible, the PRG will be asked to rank these priorities.

IV. Assessment Framework

Available systemwide funding can only support a small fraction of the world-class projects that could be conducted in each of the program areas. This oversubscription of available systemwide funds creates a system of healthy competition between the programs within the overall UC-wide research portfolio. The Portfolio Review Group will use a set of objectives and measures to assess and compare UC-wide or multicampus programs, initiatives or investments to support the most competitive programs that best contribute to systemwide objectives. This assessment will recognize the variety of sizes, goals, strategies, activities and fields of research within each program.

Defining Review Criteria and Metrics. UCOP and the Portfolio Review Group will work closely with each program to define a rigorous set of criteria and metrics that can clearly demonstrate how the program’s funded activities contribute to systemwide objectives and how these measurements demonstrate the program’s success in achieving systemwide principles.

- Define the specific goals and criteria which may apply to the program and “map to” the principles of UC-wide research,
- Define how the program’s funded activities “map to” or demonstrate performance against each of these goals and criteria;
- Define which specific metrics will be provided to the review panel to demonstrate that performance.

The primary goal of these metrics will be to demonstrate (both quantitatively and qualitatively) how well a program or initiative delivers against the principles of UC-wide research. While good management and scientific achievements may be key factors in a program’s success, these are baseline requirements for any systemwide investment and will only be considered in relation to how well they demonstrate a program’s achievements towards one or more of the UC-wide research principles.

Areas of Focus. Questions, concerns, or specific areas of focus for the review will be solicited from the Chancellors, the Council of Vice Chancellors for Research, the Academic Senate, Institute Directors, key program stakeholders, the Portfolio Review Group, and the external review panel (when applicable). These areas of focus should be directly addressed in the review criteria and metrics, as well as in the materials provided to the Portfolio Review Group and the external review panel.

Benchmarking Performance. Wherever possible, programs, initiatives, and projects should benchmark their performance against comparable institutions within UC or at other academic institutions. Programs, initiatives, and projects may also choose to provide trend data, benchmarking performance in specific areas across time. All programs, initiatives, and projects committed to continual self-evaluation and improvement should have developed strong metrics for internal use to measure and benchmark their own performance. However, in the event that a program under review does not have readily identified benchmarking data, the Portfolio Review Group and the external review panel (when applicable) may suggest some options. These options will be evaluated for feasible inclusion in the current review, and may be required for future evaluations.

Evaluation. Based on the metrics and materials defined jointly by UCOP, the program, and the Portfolio Review Group, the PRG would rate a program’s performance against each systemwide objective.

Principle-Guided Assessment Framework. Defining a strong assessment framework based on UC-wide principles will enable UCOP to benchmark and compare a diverse set of systemwide investments, and evaluate their performance against a common set of systemwide goals. Specific review criteria and metrics can be flexible, allowing programs to demonstrate – both quantitatively and qualitatively – the diverse activities and accomplishments of each program. However, the goals themselves should remain constant across programs, mapping the review criteria back to UC-wide principles for research investments. The basic structure mapping the principles to goals and review criteria can be seen below:

- *Principle #1: Act as one system of multiple campuses to enhance UC’s influence and advantage.*
 - Goal: Provide UC faculty and students with access to unique facilities or resources that set UC apart.
 - The benchmarking of resources or facilities against similar efforts, resources or facilities.
 - The demonstration of broad access, participation, usage and/or support from UC faculty and students systemwide.

- The demonstration of how funded programs have helped to attract faculty, technical staff, and students systemwide. Special note should be made of efforts to assist with campus faculty recruitment and retention.
 - The demonstration of how funded programs have helped increase UC's competitiveness in other arenas: e.g., by improving academic program rankings, increasing public engagement and support for UC, developing unique and valuable relationships with external parties, etc.
 - Goal: Enable, where available, successful competition for large research projects and grants that single campuses could not access, shown by:
 - The demonstration of how investment by the State and UCOP in the funded program is used to maximize opportunities for external funding.
- *Principle #2: Promote efficient inter-campus collaborations and systemwide economies of scale.*
 - Goal: Efficient operation of shared research facilities, which can be demonstrated by:
 - The benchmarking of basic operations costs against similar facilities.
 - The demonstration of the access and value provided to faculty, students and the research community.
 - Goal: Demonstrate systemwide engagement through long-range planning, transparent governance, reporting and accountability, characterized by:
 - The development of a long-term strategic plan used to guide future research direction.
 - The involvement of key constituents in the strategic planning process, and the clear communication of the strategic plan to staff and key stakeholders.
 - Regular assessment of strategic priorities and adjustment of these priorities as necessary.
 - An engaged governance and advisory structure.
 - An open and transparent program administration, which includes clearly communicating performance and direction to academic partners and the provision of more detailed administrative and fiscal information to appropriate oversight structures.
- *Principle #3: Serve the State of California*
 - Goal: Collectively impact Californians through research at multiple campuses in multiple regions of the state, demonstrated by:
 - An assessment of the program's contribution to the University's research mission.
 - An assessment of the economic, cultural, and societal benefits brought to multiple regions in California resulting from program activity.
 - An assessment of the program's ability to actively engage and inform the California public.

Appendix A: Recommended UC Portfolio Review Group Charge

The UC Office of the President currently invests in various UC-wide research programs and facilities to serve systemwide needs and take advantage of UC's wide distribution of talent for addressing emerging research areas of scale. The amount of this investment fluctuates owing to changes in the UC budget. To ensure that the total amount is optimally spent to provide the best support for UC UC-wide research, UCOP will establish the **Portfolio Review Group (PRG)**. The purpose of the **Portfolio Review Group** is to:

- 1) Provide guidance to the **Vice President** for Research and Graduate Studies on the size, shape and quality of current UC research investments. Assess the systemwide research portfolio to ensure that investments are aligned with systemwide funding principles and that the systemwide research portfolio is well-balanced according to its size and focus of funding.
- 2) Provide recommendations to guide the Vice President in making fair and transparent funding decisions, and assist program directors in the strategic planning and management of their programs.
- 3) Recommend opportunities for new investments in systemwide research to strengthen or balance the research portfolio.

The Portfolio Review Group will provide written reports to the Vice President for Research and Graduate Studies at UCOP. The recommendations will be made available to the UC community to ensure transparency in decisions about systemwide research funding.

The PRG will meet on an annual basis to review the UC-wide research investment portfolio, assess its alignment to the three principles, and make recommendations to the Vice President on research priorities for the upcoming three to five years. The Vice President may also call on the PRG throughout the year for advice on specific research funding issues.

The PRG will be asked to make recommendations on:

- **Areas of Priority for Future Research Funding.** The PRG will be asked to assess the quality and vitality of current research investments against the potential for new opportunities or directions, and make recommendations to help guide new investments. These recommendations could be for specific emerging or critical fields of research, for types or categories of research that require more support (such as graduate studies or research computing), or specific programs, where appropriate. Where possible, the PRG will be asked to rank these priorities. The PRG may recommend or establish a UC-wide task force to carry out strategic planning for UC-wide research.
- **Programs to Continue, Transition or Sunset.** The PRG will also be asked to help identify programs that may be appropriate to sunset or transition to other funds. These may include: (a) programs that are not well-aligned with UC-wide goals (see Principles in Section II above); (b) programs that are less cost-effective at meeting UC-wide goals than other investments; or (c) well-established programs that have outgrown the need for systemwide funding.
- **Guidance on the direction of specific programs or funds.** Where appropriate, and on a limited basis, the PRG will be asked to provide guidance or advice on the direction, alignment, or use of systemwide funds within specific programs. These recommendations are primarily to provide feedback on specific concerns or opportunities related to these programs, and to advise the Vice President and program directors on how to best address these.

Portfolio Review Group Membership

- A. Members will be appointed by the Vice President from a slate of nominees drawn from UC faculty from across the UC system, administrators from the campuses and UCOP; and individuals not employed by UC (External), as deemed necessary by the Vice President.

- B. The Vice President will select administrators and external members with nominations from campus chancellors, taking into account representation of a broad range of roles and academic disciplines on the PRG by current and prospective members.
- C. At least three Vice Chancellors of Research (VCR) from UC campuses will be members of the PRG, with staggered terms so that one new VCR will rotate on each year.
- D. Nominations for Academic Senate faculty will be provided by the Chair of the systemwide Academic Senate to the Vice President.
- E. Academic Senate Faculty will comprise at least half of the UC internal membership.
- F. The period of membership will be three (3) years. There is no specific limit on the number of times a member may be reappointed. However, each individual reappointment will be subject to the approval of the Vice President, and the candidate's acceptance of the new term.

Portfolio Review Group Officers

- A. Group officers shall be a Chair and a Vice Chair, both of whom are current PRG members.
- G. Officers shall be invited to serve by the Vice President, who will provide the PRG with its charge. The Vice Chair, after a year of service will be invited to advance into the Chair role..

Portfolio Review Group Officers

- B. Group officers shall be a Chair and a Vice Chair, both of whom are current PRG members.
- C. Officers shall be invited to serve by the Vice President, who will provide the PRG with its charge. The Vice Chair, after a year of service will be invited to advance into the Chair role.

Responsibilities of Portfolio Review Group Officers

The **PRG Chair** shall, in consultation with the Vice President, determine the agenda for, convene, and preside over all meetings. The Chair shall work with UCOP staff to assure that reasonable notice of meetings is provided to the general membership.

The **PRG Vice Chair** shall assume the duties of the Chair in the Chair's absence.

Meetings

Regular meetings shall be held once a year. Additional meetings may be called, as needed. A regular meeting quorum shall consist of a minimum of one half of general members.