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Chair of the Assembly of the Academic Senate
Faculty Representative to the Regents
University of California
1111 Franklin Street, 12th Floor
Oakland, California 94607-5200

August 3, 2018

KEN SMITH, EXECUTIVE DIRECTOR
ENVIRONMENT, HEALTH, AND SAFETY

Re: Revised Unmanned Aircraft Systems (UAS) Policy

Dear Ken:

At its July 25, 2018 meeting, the Academic Council endorsed the enclosed letter from the University Committee on Research Policy (UCORP) summarizing the committee's understanding of how UC's new Policy on Unmanned Aircraft Systems (UAS) was reviewed, and providing recommendations on moving forward.

As you know, the Senate reviewed the policy in 2017 and expressed significant concerns. UCOP revised the policy in response to those concerns and approved the final policy in February 2018, but without recirculation to the Senate. This communication breakdown was regrettable, but we appreciate your consideration of the Senate comments and your efforts to revise and clarify the policy. We understand that a UAS Advisory Committee is now being formed to study how well the policy is working. In its letter, UCORP makes several recommendations about the composition and scope of that Committee, including the need for Senate representation and a request that the results of the study be reported to UCORP in spring 2019.

Please do not hesitate to contact me if you have any questions.

Sincerely,

Shane N. White, Chair
Academic Council

Encl.

Cc: President Napolitano
       Director Stark
       Academic Council
       Senate Director Baxter
       Senate Executive Directors

UNIVERSITY COMMITTEE ON RESEARCH POLICY (UCORP)   University of California
Jeffrey D. Richman, Chair   Academic Senate
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July 18, 2018

SHANE WHITE
CHAIR, ACADEMIC COUNCIL

Re: Revised Unmanned Aircraft Systems (UAS) Policy

Dear Shane,

In response to your request, the University Committee on Research Policy (UCORP) has examined the new UC policy on Unmanned Aircraft Systems (UAS), commonly referred to as drones. In this letter, we summarize our understanding of how this policy was reviewed up to this point and provide specific recommendations on how to move forward. One key recommendation is that the UAS Advisory Committee, now being formed, should conduct a detailed study of how the policy is working in practice and report the results to UCORP in the spring of 2019. We also recommend that the faculty members serving on this committee should be chosen in consultation with the University Committee on Committees.

In studying these issues, we have obtained valuable input from Dr. Brandon Stark, the Director of the UC Center of Excellence on Unmanned Aircraft Systems Safety; Ken Smith, Executive Director of Environmental Health & Safety; and Professor Peter Burke (UCI), who has strong involvement and interest in UAS-related research. UCORP heard a presentation from Dr. Stark and Executive Director Smith on UAS issues at our May 2018 meeting. Dr. Stark has been extremely helpful and available for answering questions from our committee. While we have not heard a formal presentation from Professor Burke, he has provided an extensive written critique of the policy, which we have considered.

The original version of the proposed UAS policy was discussed in the Academic Council on April 26, 2017. The concerns of the Senate were compiled and also summarized in a letter from Academic Senate Chair Jim Chalfant to Vice Provost Susan Carlson on May 1, 2017. A broad range of issues was raised, but many of the concerns centered around two major objections: (1) the perceived complexity and lack of clarity in the policy and (2) the expectation that the policy would lead to unnecessary and burdensome restrictions and delays in drone-related research activities. Chair Chalfant's letter also questioned whether such a policy was even needed:

Several reviewers noted that the policy is redundant with existing FAA regulations around pilot certification and advance flight notification, and in some cases, goes beyond those requirements. At the very least, given the existing FAA regulations, the policy should make a better case for why a systemwide UC policy is needed, the additional benefits of new UC regulations, and any possible circumstance in which UC might disallow a UAS flight that the FAA has approved.

Following the Academic Senate Review, the authors of the policy made a number of improvements and clarifications, and they prepared a 19-page, point-by-point response to the concerns of the Senate. In addition to preparing the responses to the Senate, the authors of the UAS policy have also worked to further clarify its meaning by preparing a number of documents, including a Frequently Asked Questions (FAQ) document and a web page with links to relevant material:

https://www.ucop.edu/enterprise-risk-management/resources/centers-of-excellence/unmanned-aircraft-systems-safety.html

These resources may help to address some of the concerns of the Senate.

UCOP then revised the UAS policy, which went into effect in February 2018. It is our understanding that the new documents – the revised UAS policy, the 19-page response to Senate concerns, and the FAQ – were not circulated to the Academic Senate for reconsideration, which is regrettable.

In the spring of 2018, Professor Peter Burke of UC Irvine wrote to various members of the Academic Council, including me, to express his concerns about the new policy and to ask for guidance on how to contact UCOP policy makers to register his objections. Professor Burke provided extensive commentaries on the new policy, including a letter, dated April 5, 2018, in which he quotes the main points of Chair Chalfant's letter one by one and asserts that the new policy does not address these concerns. Professor Burke believes that the policy will strongly constrain and discourage the use and development of drones in the UC system and, as such, represents a major impediment to research in this area.

As we have noted, Chair Chalfant's letter questioned whether a systemwide UC policy on drones, beyond conformity to FAA regulations, is even necessary. UCORP has concluded that the operation of drones on University property or elsewhere as part of the University's research or educational missions brings potential risks, as well as other less serious impacts such as interference with other activities, along with its many research and educational benefits. The risks are not only hypothetical, and UC has experience with accidents caused by drones even under well-controlled conditions with expert operators, including a serious fire. Given the rapid expansion in the use of drones, there is a clear possibility of accidents with potential exposure to the University. Of course, many other research activities also have potential for causing accidents. But the fact that drones are used outside of controlled laboratory spaces and can interact with people and property in a wide variety of circumstances, indicates to us that a specific policy on drones is a reasonable and prudent step. Thus, UCORP believes that, on the basis of safety, security, and privacy considerations, a UC policy is justifiable as a matter of principle.

Formulating such a policy and implementing it in a way that minimizes impact on research freedom and flexibility is a significant challenge. Another challenge is the wide range of equipment and circumstances that can be involved. The technologies used in drones are evolving rapidly, and the capabilities of these systems are not by any means fixed. Safety-related policies often encounter issues related to ``safety culture'' and acceptance. If a set of policies is not considered practical and reasonable by the community directly involved, the policies can generate skepticism, cynicism, and non-compliance. For all of these reasons, any policy related to drones requires substantial care, communication with the user base, and appropriate updating. From our interactions with the policy developers, we believe that these points are understood and in many cases were anticipated.

Given that the policy has already been approved, UCORP has focused on providing suggestions that can help to answer key questions and reduce the uncertainties associated with major points of contention. Fortunately, the authors of the policy have developed an app-based system that appears to have the ability not only to streamline the approval process, but also to enable data collection. **We believe that, over the next year, UC should use these tools and others to perform a quantitative analysis of key issues related to UAS usage. We also believe that a survey of UAS users could provide valuable information to supplement these data. Together, this information could then be used to determine the extent to which potential problems raised by the Senate are encountered in practice.**

UCORP notes that the UAS Advisory Committee, while not yet formed, is likely to have the breadth and expertise to carry out such a study and to produce a written report that can put this discussion on an empirical foundation. We therefore make the following recommendations:

1. The UAS Advisory Committee should include members carefully selected to represent the diverse interests and concerns of faculty researchers. The selection of these members should be done in consultation with the University Committee on Committees (UCOC). Such Senate consultation would greatly contribute to the legitimacy of this representation in the eyes of the UC faculty.
2. The UAS Advisory Committee should prepare a report by spring 2019 that (a) assesses the strengths and weaknesses of the policy and (b) makes recommendations to address any weaknesses.
3. The report should include data gathered on drone usage, number and types of accidents (including level of seriousness and impacts), time required for approvals, types of approvals, the number of blanket approvals (given for an extended period of time or for multiple flights), the number of requests denied, complaints received, and campus-by-campus lessons learned in the policy implementation.
4. Going beyond the data collected as part of the policy implementation, we believe that it is important to assess the impact of the policy on research through a survey of UAS users, in which open-ended questions are included. For example, it is important to determine whether the policy is discouraging UAS-based research or whether users have suggestions on how to better implement the policy.
5. In light of these data, the report should also review the policy with respect to the concerns expressed by the Academic Senate in spring 2017.
6. UCORP also encourages the UAS Advisory Committee to explore ways in which

UAS users as a community can share information. This could be done using web-based tools or even through a workshop or conference.

The report of the UAS Advisory Committee should then be examined by interested Senate divisions and committees.

The recommendation to evaluate the performance of the UAS policy and to gather relevant data is in many ways parallel to one made by UCORP with regard to Export Control Policy. We believe that this is a useful paradigm: when a major new policy is approved and implemented, the Senate should follow up after a year to see what has been learned. For both UAS and Export Controls, the individual UC campuses have been given considerable control and responsibility for the detailed implementation of the policy within an overall framework. We believe that, in both cases, it is critical to formulate the key questions early on to ensure that the relevant data will actually be collected. In the case of Export Control Policy, UCORP has requested a report from ORGS towards the end of the 2018-2019 academic year. Our recommendation on assessing the UAS Policy leverages both the planned UAS Advisory Committee and the tools being created to implement the policy.

Please let us know if you have any further questions.

Sincerely,

Jeffrey D. Richman
Chair, University Committee on Research Policy

cc: Robert May, Academic Council Vice Chair
Hilary Baxter, Academic Senate Director
UCORP members