December 9, 2015

Martha O'Donnell, Chair
Faculty Executive Committee
UC Davis School of Medicine

Re: Proposal for a Minor in Public Health Sciences

The Undergraduate Council (UGC) has reviewed and discussed the proposal for a minor in Public Health Sciences. The UGC recognizes the significance and value of the minor, and would expect that it will eventually be a well-subscribed minor. The cover letter from Dr. Freischlag indicates that the Department of Public Sciences has sufficient resources to host the minor, and this is good news, but the minor electives specified are largely from other units and it was not clear how they will be affected by the minor or if they were consulted about the proposed curriculum. This last point relates to concerns expressed regarding how the minor will impact courses outside of SPH that are proposed to serve as required minor electives. Evidence of communication with those units on course availability was not included in the proposal and should be. This is important because the minor will very likely influence the demand for, and availability of, courses in other units.

To aid the proposing unit in addressing UGC questions and concerns, we request that the proposal be revised to include information as specified in the attached draft guidelines for new minors. The UGC drafted the guidelines, so they should help provide insight on UGC expectations, and so expedite the review of a revised proposal. The information requested includes letters from other affected units, for example those offering classes that will be used by the minor or other programs that relate to the proposed minor (e.g., Nutrition, Statistics, Economics, Global Disease Biology). Note however that these are draft guidelines and have not transited the complete campus approval process. They should however, provide a very solid basis for a revision of the proposal. I hope that you will find the guidelines helpful.

These comments are respectfully submitted on behalf of the UGC.

Edward Caswell-Chen, Chair
Davis Division Academic Senate Undergraduate Council

Enclosure

c: André Knoesen, Chair, Davis Division Academic Senate
Gina Anderson, Executive Director, Davis Division Academic Senate
Carolyn Thomas, Vice Provost and Dean for Undergraduate Education
Julie Ann Freishlag, Dean, UC Davis School of Medicine

Establishment or Revision of Academic Degree Programs

I. Purpose

Under the bylaws of the Davis Division of the Academic Senate, Undergraduate Council has responsibility for approving: new majors and minors, revisions of majors and minors, and closure of majors. (Mergers of majors or division of a major are included within these categories.) This section describes the formal steps to be taken in preparation, transmittal, review, and implementation of proposals at UCD and information that must be provided within a submission to the UGC in one of these categories.

II. Policy

A. For the purpose of this policy, an academic degree program is considered any regularized sequence of courses leading to a degree, including those programs sponsored by groups of faculty for the purpose of presenting a degree program that is interdepartmental in nature. All degree programs must be offered under the sole or joint jurisdiction of the departments, colleges, schools, graduate divisions, or other University academic agencies approved by the Board of Regents. Proposals to offer new degree titles are also covered by this procedure.

B. The process for the creation of or discontinuation of academic programs shall be accordance with the University's system of shared governance and shall be consistent with the relevant University wide policy statements cited in this section.

C. Each party in the process is expected to expedite consideration of pending proposals. Answers to questions that arise in the review process shall be sought from earlier reviewers and incorporated into recommendations as needed. Revisions to proposals may be approved without re-review by advisory parties but require approval by parties with authority to approve or reject a proposal. If a proposal is revised to address reviews, those parties that contributed advisory reviews (e.g., other programs influenced by the proposal) need not be consulted again, but those reviewers that had authority to approve a proposal must again approve the revised version (e.g., Dean).

III. Contents of Proposal

Establishment and Disestablishment of Majors and Minors, Reconstitution of Majors and Minors

Please see Appendix A for additional information on required information and formatting for the information required. If additional questions arise during the preparation of such documentation, please contact the Academic Senate Office.

A) Information to be included in a proposal for a new major or minor.

Undergraduate Major Proposal

It is important to discuss the proposal with any and all individuals or programs that may be impacted by the establishment. Early in the process of preparing a proposal, please consult with the college Associate Dean for Undergraduate Education, the Office of Undergraduate Education, and the Academic Senate Office regarding any questions on the following expected information.

1. *Name of new major.*
2. *Campus*
3. *Specify the degree to be conferred (e.g., B.S.). (not necessary for minors).*
4. *Specify any tracks (emphases or concentrations) that will exist within the major.*
5. *Target term to start (if the major will be instituted incrementally, please specify terms for freshmen admissions, for transfer admissions, and for changes of major internal to UCD).*
6. *Briefly describe the major/minor:*
   a. Describe its relationship to existing campus majors and overlap. Consult with programs that may perceive an overlap or conflict. (As appropriate, attach letters from impacted programs.)
   b. What are the educational objectives of the program (provide core competencies and learning outcomes)?
   c. What are special requirements or features?
   d. As appropriate, list UC Campuses and other California institutions, public or private, that now offer the major or closely related majors (not necessary for minors).
7. *Describe the rationale for the proposal.*
   a. Explain why this new program is needed;
   b. Provide documentation of student opinion on the proposal (e.g., student survey);
   c. Provide projected job opportunities for graduates.
   d. Provide a summary of the evaluation process during the first three years it is implemented (not necessary for a minor).
8. *Provide a list of the proposed curriculum and comment on availability and space in each course (see Appendix A for example formatting).*
   a. List all existing courses to be required.
   b. List existing courses that will be electives.
   c. List all course prerequisites.
   d. List all new courses to be required or included as electives.
   e. Explain the sequencing ("roll out") of new course offerings over the first five years.
   f. Specify (by name and rank) the instructors of the courses.
   g. Include course outlines for proposed core courses (e.g., catalog descriptions).
9. *If required research, or internships, is required, clearly describe the requirement(s) and how students will be expected to meet the requirement.*
10. *Describe the administrative structure (list any committees and initial committee membership), include specification of the Academic Senate faculty (categories) that will vote on changes in the major (not necessary for minors).*
11. *Describe the advising structure, explicitly describe advising and support staff and location(s) for staff.*
12. *Describe the implementation. Provide enrollment estimates for the first five years and state the basis for this estimate. Describe contingency planning if more or fewer students join during the first few years than anticipated.*

13. *Specify the costs (resources required and projected) associated with implementation (by year) for the first five years. These costs, or "resources" broadly construed, may include but are not limited to: FTE, advising staff, teaching assistants, library acquisitions, computing, equipment, and facilities.*
14. *Provide letters of support from academic units whose courses are used and faculty who are committed to providing instruction and mentoring in the program as appropriate. Chair/director letters should include:*
    a. Course capacity to accommodate students including frequency of offerings and any resources necessary to expand capacity.
    b. General level of departmental support commitment.
    Faculty letters should include:
    a. Comment on perceived value.
    b. Intent to participate and in what specific capacity (use of specific courses, development of new courses, etc.)
15. *Provide letter(s) of support from the relevant Dean(s) committing to any costs specified in (13).*
16. *Provide any MOUs documenting commitment with units providing or sharing faculty, staff, facilities, etc.*
17. *Specify if the major and associated program will be subject to regular review by an outside agency, and include the agency (e.g., ABET, ACEND). (not necessary for minors)*
18. *Specify the members of the Committee in Charge.*
19. *Specify Affiliated Faculty that will participate in curriculum delivery.*

B) Establishment approval process

A proposal to establish a major or minor must first be voted on by the Academic Senate members of the unit offering the program. Once a positive vote is certified:

1. *The recommendation of the affected* (i.e., relevant) *unit(s) is forwarded to the college or school Executive Committee of the affected* (i.e., relevant) *school or college in which the degree is to be offered, and to the dean of the school or college.*

2. *The college/school Executive Committee approves or rejects the proposal following the procedures specified in its bylaws.*

3. *The Dean of the school, college, or division prepares an independent evaluation of the proposal, including statement of resource commitment required to implement.*

4. *Documentation of the approval from the school or college Executive Committee and the recommendation of the Dean are forwarded to the Davis Division of the Academic Senate Chair at academicsenatechair@ucdavis.edu for standing committee review providing comments to Undergraduate Council before making a final determination.*

5. *The Committee on Planning and Budget reviews the proposal and submits advisory comments to Undergraduate Council. These comments are a required element of UGC*

review of the proposal.

6. *Undergraduate Council reviews the written proposal submitted along with advisory comments gathered during the consultation period. The results of the UGC review will be provided to the proposers; with possible outcomes being: denial; request for revisions to the proposal; or, approval. Only revisions to the proposal that require the commitment of resources beyond that described in the original proposal must be approved (Steps 2, 3, 4) and resubmitted (Step 4). The revision process may be iterative until UGC reaches a final determination regarding the proposal. The UGC is responsible for evaluation of the proposal on behalf of the Davis Division Academic Senate.*

7. *Undergraduate Council's final determination on the proposal is provided in writing to the proposers. A copy of the response, along with all documents reviewed is provided to the Davis Division of the Academic Senate Chair and Dean/Vice Provost—Undergraduate Education. The Dean/Vice Provost- Undergraduate Education will place the proposal on a Council of Deans and Vice Chancellors (CODVC) agenda for discussion.*

8. *If UGC recommends approval of the proposal, the CODVC determines if the action will be supported by the campus and advises the Chancellor.*

9. *The Dean/Vice Provost–Undergraduate Education notifies the Academic Senate chair, Undergraduate Council Chair, college or school dean, department chair, Accounting & Financial Services, Undergraduate Admissions, University Communications, Registrar, Resource Management & Planning, of the outcome.*

10. *Per the Compendium: Universitywide Review Processes for Academic Programs, Academic Units, & Research Units, "With the exception of the two scenarios described below, all actions involving undergraduate degree programs are administered by the individual campuses and do not undergo system-level review." (To view the complete compendium, go to http://www.ucop.edu/institutional-research-academic-planning/_files/compendium_sept2014.pdf)*

    The scenarios that are the exception to campus-only action in connection with undergraduate degree programs and that trigger system-level review are as follows:
    1) establishment of a hybrid undergraduate/graduate degree program (Section II.A.1);
    2) creation of an undergraduate degree title unique to the campus (e.g., the firstever B.F.A. program on the campus) (Section II.C.);

C) Revisions of Majors

Proposals to revise a major must include review and approval by the Undergraduate Council if the proposed revisions are substantial. Proposed revisions should be considered with respect to how they may affect time to degree and the potential impact on students in other departments or colleges. Programs should request an initial, informal review through the Chair of UGC for proposed changes to majors if reasonable doubt exists as to whether the changes should be considered "substantial." Substantial revisions to a major are considered to include, but are not limited to, the following types of revisions:

(a) Merger of existing majors, or division of a major into multiple majors;
(b) Changing the name of the major;
(c) Addition of a new "concentration" within an existing major (or "specialization," or "emphasis," or other term indicating a focus within a major - such concentrations may receive explicit transcript notation);
(d) Changing an existing major into a "concentration" within another, closely allied, existing major (one form of closing a major, see appropriate guidelines);
(e) Changes to courses or degree requirements that include addition of required courses offered by another department or college;
(f) Proposals to add required research experiences, internships, or other capstone requirements.

Documentation within the proposal for revisions to an existing major

(g) The proposal for a revised major should include a comparison of the new and the old major and justification for the proposed changes.
(h) If new tracks (emphases or concentrations) are proposed, any resultant changes to courses required by the major must be specified. If the proposed changes include courses offered by another department, the availability of those courses should be documented in the proposal.
(i) Proposals to merge majors should describe any changes to the curriculum (including the addition of tracks).
(j) Proposals to revise a major should state the number of students likely to be affected by the revision (including majors and double majors). A survey of students would be helpful, as with a new major.
(k) The proposal to revise a major must specify the timing of changes to the major (by quarter and year) and how proposed changes will be implemented to ensure accommodation of those students in the major at the time the proposal is submitted. Proposers should be aware that students in a major have "catalogue rights" to follow the major as constituted when they entered UCD.
(l) If appropriate or necessary to facilitate the implementation of a revision, a program can request that UGC suspend admissions to an existing major (see D).

D) Proposals to Discontinue (Close) a Major

The UGC reviews and evaluates proposals to discontinue (close) a major. A proposal to discontinue a major requires the same documentation of proposal preparation and subsequent approvals as a new major proposal. If the major is the last of its kind (i.e., not reproduced by any other major in the UC) the proposal is further reviewed at the System wide level.

A proposal to close a major should include the following information:

1. *Justification of the proposed action, including analysis of costs and benefits to the campus and expected budgetary impact; a description of the expected influence on enrollment, staffing, and space requirements. Plausible estimates of the number of students affected and*

the likely movements of such students, including prospective students, across the campus or to other universities.

2. *A phase-out plan that includes an explicit description of the accommodations made for students, faculty, staff, and non-academic appointees, year by year over an appropriate interval.*
3. *A statement of all steps required for implementation of the proposal and the timetable of target dates for completion of each step. If funds are required to implement the plan, commitment of such funds must be documented.*
4. *Documentation of consultations regarding the proposed closure with students and faculty members of potentially affected programs, and appropriate college.*
5. *The relationship of the proposal to the campus, college, and the unit's academic plans must be described. The status of similar majors at other UC campuses must be described.*
6. *Documentation of the appropriate Senate faculty vote on the proposal. Comments (anonymous) of students, faculty, academic non-Senate appointees, and committees of the major must be included.*
7. *Per the Compendium: Universitywide Review Processes for Academic Programs, Academic Units, & Research Units, "With the exception of the two scenarios described below, all actions involving undergraduate degree programs are administered by the individual campuses and do not undergo system-level review." (To view the complete compendium, go to http://www.ucop.edu/institutional-research-academic planning/_files/compendium_sept2014.pdf)*

   The scenarios that are the exception to campus-only action in connection with undergraduate degree programs and that trigger system-level review are as follows:
   3) discontinuance of an undergraduate degree title that is the last of its kind on a campus; (Section II.C.) and
   4) discontinuance of an undergraduate degree program that is the last of its kind in the UC system (Section IV.A).

Appendix A

Name of Program
{text}

Campus

Degree/Certificate Awarded

Target Term to Start

Self-Supporting Program? Y/N

Degrees/Certificates Offered

Introduction

Background and Rationale

Educational Objectives || Core Competencies/Learning Outcomes

Related Majors or Overlap With Other Majors

Curriculum - Major Requirements

Text		
Preparatory Subject Matter/Requirements		
	Text	
	Course (s)	**units**
		Total units
Depth Subject Matter/Requirements		
	Text	
	Course (s)	**units**
Additional Major Requirements		
	Text	
	Course (s)	**units**
		Total units
Restricted Electives: Emphasis | Track Subject Matter		
	Text	
	Course(s)	**units**
	Text	
	Course(s)	**units**
	Text	
	Course(s)	**units**
	Text	
	Course(s)	**units**
		Total units
	Major Total Units	
Text		
	Course(s)	**units**
	Minor Total Units	**Total units**

Minor Program

Course outlines for proposed core courses.

Research/Internship Requirements

Administration Structure – Committee Members

Advising Structure

Implementation

Assessment of the Major
Student Opinion

Need || Opportunities

Evaluation process

Study Plan: Sample Course Sequence

Resource Requirements and Projections

Licensure Board Approval:

References || Letters of Support

Catalog formatting

Major Name
College/School/Group (College of__)
Interdisciplinary major?
Office .{address & phone}
Committee in Charge
{list of members, titles, and departments}
Faculty
{list of faculty }
{text field for descriptive paragraph}
Emeriti Faculty
{list of faculty }
{text field for descriptive paragraph}
Affiliated Faculty
{list of faculty }
{text field for descriptive paragraph}

The Major Program
{Descriptive text}

Internships and Career Alternatives.
{Descriptive text}

Additional Information
{where text that does not fit elsewhere gets put}

B.S. Major Requirements: UNITS {##}

Preparatory Subject Matter		{units}
text		
CourseName	units	
CourseName	units	
Depth Subject Matter/Requirements		{units}
text		
CourseName	.units	
CourseName	units	
Additional Major Requirements		{units}
text		
CourseName	.units	
CourseName	units	
Restricted Electives (Emphasis/Tracks) .		{units}
{descriptive text}		
CourseName	units	
CourseName	units	
{descriptive text}		
CourseName	units	

CourseName	units	
{descriptive text}		
CourseName	units	
CourseName	units	
Total Units for the Degree		{units}

A.B. Major Requirements:

Preparatory Subject Matter		{units}
text		
CourseName	units	
CourseName	units	
Depth Subject Matter/Requirements		{units}
text		
CourseName	units	
CourseName	units	
Additional Major Requirements		{units}
text		
CourseName	units	
CourseName	units	
Restricted Electives (Emphasis/Tracks) .		{units}
{descriptive text}		
CourseName	units	
CourseName	units	
{descriptive text}		
CourseName	units	

CourseName	units	
{descriptive text}		
CourseName	units	
CourseName	units	
Total Units for the Degree		{units}

Advisor : {name/title}
Advising Center {text}
Minor Program Advisor

Minor Program Requirements:

{descriptive text}		
CourseName	units	
CourseName	units	
Total Units for the Degree		{units}

Courses in [*program name (SUBject code)*]
Lower Division*List courses with subject code 001-99*

Upper Division
List courses with subject code 100-199

EXAMPLE:

Courses in Applied Biological Systems Technology (ABT)

Lower Division

15. Wood Properties and Fabrication (2)
Lecture/discussion—1 hour; laboratory—3 hours. Study of wood properties and techniques for fabrication with wood. Gain experience working with various woods and woodworking tools for specific applications. (P/NP grading only.) GE credit: OL, QL, SE, VL.—II. (II.) Grismer, Shafii

View the UC Davis Catalog for full samples of program display.

Post Approval Processing – fields to capture, Registrar's Office

We have data in our Major History database, open and closed major codes going back to 1958, and some old codes we do not know when they were offered majors. This information is entered after we obtain approval from the Vice-Provost on the proposal and canvas the departments for specific start/end term information and Banner coding preferences.

Major / Minor / Emphasis data captured by the Registrar's office after the program is approved by the
Vice Provost:

Major Code	Minors:	Emphasis
Banner Major Name	Banner Code	Banner Code
Full Major Name	Banner Minor Name	Banner Ephasis Name
UCOP	Full Minor Name	Full Emphasis Name
CIPC	Discipline	Discipline
Discipline	Links (to major)	Linked Major
Linked, previous major	School	Other Links (previous major, other emphasis)
School	Department	School
Department	Degree	Department
Degree	Level	Degree
Level	Start Term	Level
Start Term	End Term	Start Term
End Term	First Term Admit	End Term
UCOP approval date	Last Term Admit	UCOP Approval Date
First Term Admit	Last Term Published	First Term Admit
Last Term Admit	Term disestablished	Last Term Admit
Suspended Until	Active (yes/no	Last Term Published
Last Term Published	Notes	Term disestablished
Term disestablished	Comments	Active (yes/no)
Self-Supporting	Last Modified	Notes
Health Services	Modified by)	Comments
Non-Degree Major		Last Modified
Active (yes/no)		Modified by
Notes		
Comments		
Last Modified		
Modified by)		

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FACULTY SENATE OFFICE
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SACRAMENTO, CA 95817

November 5, 2015

Andre Knoesen
Gina Anderson
Davis Division Academic Senate

Subject: Response Letter to Proposal for a Minor in Public Health Sciences

Dear Dr. Knoesen and Ms. Anderson:

The Faculty Executive Committee met with Brad Pollock, Chair of Public Health Sciences, Dr. Lorena Garcia, and Amber Carrere. After a brief discussion, the FEC voted and unanimously endorsed the proposal for a minor in Public Health Sciences.

Respectfully,

Martha E. O'Donnell

Martha E. O'Donnell, Ph.D.
Chair, Faculty Executive Committee

UNIVERSITY OF CALIFORNIA, DAVIS

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OFFICE OF THE VICE CHANCELLOR
HUMAN HEALTH SCIENCES

OFFICE OF THE DEAN
SCHOOL OF MEDICINE
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UC DAVIS HEALTH SYSTEM

4610 X STREET
SACRAMENTO, CALIFORNIA 95817

MEDICAL SCIENCES 1-C
DAVIS, CALIFORNIA 95616

October 26, 2015

Chair of the Academic Senate
Professor Andre Knoesen
academicsenatechair@ucdavis.edu

Dear Professor Knoesen:

I am writing to give my full support to the proposal for an undergraduate minor in Public Health. The Department of Public Health Sciences' new minor provides much needed formal training in public health to the many UC Davis undergraduates considering a career in the health sciences. Training in disease prevention and health promotion will benefit students interested in medicine, nursing, and other allied health professions and well as those considering a graduate degree in public health. In addition, the proposal responds to the UC Office of the President's recommendation to expand and diversify the pipeline to graduate training in public health.

The Department of Public Sciences has sufficient resources to host a very successful Public Health minor. The required courses are already approved or in the process of approval with Instructors of Record identified. The Department's administrative staff includes two very capable Student Affairs Officers who have systems in place to advise students, track their academic progress, and to place those interested in an internship. Finally, a new Director of Undergraduate Education, Dr. Lorena Garcia, Associate Professor, will provide academic leadership for the minor.

Sincerely,

Julie Ann Freischlag, MD
Vice Chancellor for Human Health Sciences
Dean of the School of Medicine
University of California, Davis

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DEPARTMENT OF PUBLIC HEALTH SCIENCES
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Chair of the Academic Senate
Professor Andre Knoesen
academicsenatechair@ucdavis.edu

Dear Professor Knoesen:

I have attached a proposal for a minor in Public Health for your review and approval. The Department of Public Health Sciences developed the new minor in response to tremendous student demand for coursework in public health and the UC Office of the President's recommendation to expand and diversify the pipeline to graduate training in public health.

Our Department has a deep commitment to graduate education in both the School of Medicine and the Graduate Group in Epidemiology. But we have offered SPH 101: Perspectives in Public Health for approximately 20 years in order to expose undergraduates to an exciting and rewarding career path in disease prevention and health promotion. We now teach SPH 101 twice each year in response to student demand, and enrollment continues to grow. A new undergraduate course offered in Fall 2014, SPH 104: Globalization and Health, was very popular with students, as we expect two new classes to be (SPH 102: Health Disparities and SPH 102: Introduction to Epidemiology and Biostatistics). The proposal for a Public Health Minor requires 20 units of coursework, with 10-11 required units taught by our department and 10 units of electives from our department and across the campus.

The Department of Public Health Sciences' faculty support this proposal, with 9 of 15 Academic Senate members and 3 of 8 Academic Federation members and 2 out of without salary voting in favor of the Public Health Minor. I have included a strong letter of support from Julie Freishlag, MD, MPH, the Dean of the School of Medicine.

Sincerely,

Brad H. Pollock, M.P.H., Ph.D.
Professor and Chairman
Arline Miller Rolkin Chair in Public Health Sciences
Department of Public Health Sciences
School of Medicine
E-mail: bpollock@ucdavis.edu

Public Health Minor
Department of Public Health Sciences

Rationale and Background

Why does UC Davis need a minor in Public Health?

The Public Health minor was developed in response to student demand for coursework in public health and the need to expand and diversify the candidate student pipeline to graduate training in public health. The Institute of Medicine defines the mission of public health as "…fulfilling society's interest in assuring conditions in which people can be healthy." (1) This can range from applying epidemiological methods and biostatistical techniques to identify the cause of a disease, to an emergency response to an earthquake or flood, to implementing multiple educational and policy strategies to reduce smoking rates in populations.

Since 2002 the Department Public Health Sciences (PHS) offered a Master in Public Health (MPH), which is the most common graduate professional degree in the public health field (2). Public Health Sciences faculty taught a limited number of undergraduate courses in public health over the years, and the Department is now in the process of expanding its commitment to undergraduate education.

UC Davis student demand for undergraduate courses in public health is growing. The Public Health Sciences Department taught *SPH 101: Perspectives in Public Health* for approximately 20 years. Since the winter of 2012, 255 undergraduates have taken SPH 101. Due to student demand, the Department now offers the course twice each academic year (every winter and spring quarter) and expanded enrollment to 70 students each quarter to accommodate the growing demand. In the summer of 2015, the course was approved as a GE requirement - topical breadth for science and engineering and social sciences. PHS could easily double enrollment because of the large number of students interested in the health field: volunteers in the student-run clinics, members of the 41 health-related student clubs or groups on campus, and hundreds of students majoring in a variety of subjects including Human Development, Neurobiology, Physiology and Behavior, Biological Sciences and Nutrition Science. In addition, the UC Davis Pre-Health Student Alliance (a partnership between the pre-medical and pre-health student organizations, fraternities, and sororities at UC-Davis and other local colleges in Sacramento) has hosted for 13 years the nation's largest pre-health professions conference. This annual event brings together school administrators from nearly all United States medical schools and a wide variety of other Pre-Health Professional schools, including Public Health, Dentistry, Pharmacy, and Nursing. The 3-day event includes over 350 presentations, panels and workshops that focus on engaging and recruiting a diverse cohort of students to the health sciences.

Many of the UC campuses already offer a minor and major in public health, including UC Berkeley, UCLA, UC San Diego, UC Irvine, and UC Merced. This trend within the UC system is consistent with a growth nationally in undergraduate public health education (2). Between 1992 and 2012, the number of

institutions conferring undergraduate degrees in public health increased from 45 to 176, and the number of graduates grew from 759 in 1992 to 6, 464 in 2012 (2). In 2012, 751 undergraduates obtained a degree in public health from 11 different California colleges and universities (2).

APHA published a special issue in 2006 titled "*Health Workforce Shortage: Left Unchecked, Will We Be Protected?* " The report focused on the need to increase the number of students pursuing public health degrees to address the severe workforce shortage in areas that were critical to public health, in particular epidemiology, public health nursing, laboratory science and environmental health fields (3). The decline and loss of public health workers was primarily attributed to a reduction in funding resources and the large number of the public health workers retiring and/or transitioning to other job opportunities such as those in the private sector. Training students in public health careers is critical so that emergencies such as disasters like Hurricane Katrina and outbreaks such as measles, pertussis, SARS and epidemics of influenza or Ebola can be effectively addressed. The University of California Office of the President's public health workforce assessment, released in 2004, predicted a shortage of formally trained public health professionals and noted a lack of diversity among public health professionals contributing to a mismatch between the public health workforce and the highly diverse public we serve (4). To solve these problems, the committee made several recommendations, including the expansion of undergraduate education in public health. The committee wrote:

> "Access to undergraduate public health courses increases student exposure to the field. UCB's reestablishment—after a hiatus of 34 years—of an upper division major in public health is a good step in this direction. Similarly, UCLA recently introduced an undergraduate public health minor. Expanding undergraduate classes will help to train more students in public health, regardless of their major area of study, and will contribute to a better-educated workforce. These programs also serve to increase the pool of candidates for graduate study in public health and other health professions."

Finally, the Public Health minor at UC Davis will not duplicate the course offerings of other campus degree programs. For instance, a minor in statistics may cover similar quantitative skills but not the application of those skills to health issues, whereas a minor in public health will introduce training for the translational, applied use of biostatistical skills and tools. The minor in Community Nutrition provides knowledge on a specialized heath topic (i.e. diet and health), without considering other behaviors, community factors and influences on health. The new Global Disease Biology undergraduate major has a global emphasis that integrates human, veterinary and plant health, in contrast to Public Health's exclusive (and more broadly based) focus on human health.

Details of a Public Health Minor

The Public Health minor will offer undergraduate students a foundation of knowledge for those who plan to enter the field of public health immediately following graduation and for those planning to earn an advanced degree in Public Health or a related field including medicine, nursing, laboratory science

and environmental health. It is open to students from all four colleges at UC Davis. The minor in Public Health offers the option of doing an internship for 2–4 elective units.

Students who complete the minor in Public Health will demonstrate the following:

1. Knowledge of key content regarding epidemiology and biostatistics, major health conditions, disease prevention strategies, and health disparities.
2. Knowledge of key determinants of health and disease, including biological factors, individual behavior, and social, political, and cultural influences.
3. Ability to communicate orally and in writing about concepts in epidemiology and biostatistics, disease prevention, and health disparities.

There are 11 units of core courses taught by the Department of Public Health Sciences that are required for the Public Health minor. *SPH 101: Introduction in Public Health* (3 units) is an upper division survey course that introduces students to key concepts in public health. It uses Introduction to Public Health by Mary Jane Schneider (5) as the course textbook to provide foundational readings on epidemiology and biostatistics and the distribution of disease; chronic diseases as the leading causes of death and disability in the US.; the US health care system and the influences of quality, cost, and access on the health of the public; the health care reform landscape and the possible roles of public health in it; and, the most important public health problems/issues of our time, including income and health disparities, aging of the population, physical inactivity, obesity, population, and climate change. A new course, *SPH 102: Introduction to Human Epidemiology* (4 units), will provide deeper knowledge of epidemiology for public health. Completion of *STA 13: Elementary Statistics* is required for enrollment in SPH 102 so that the student has the quantitative/math skills for SPH 102. *SPH 290: Topics in Public Health* (1 unit) brings real world public health challenges, programs and practices to the classroom with public health practitioners presenting their work on a range of topics, such as the pertussis (whooping cough) outbreak in California; policy and educational approaches to tobacco control. Finally, students will have the option to choose between learning more about global or domestic public health issues through *SPH 104: Globalization and Health* (3 units) or a new course, *SPH 103: Health Disparities in the US* (2 units).

In addition to the 10-11 units of required courses, at least 9-10 units of elective courses are required for a minor at UC Davis. The elective courses are offered in the Department of Public Health Sciences and in more than 10 departments across three schools and four colleges at UC Davis. The elective courses offer students the opportunity to improve skills in a technical area, such as biostatistics, bioinformatics or toxicology (ECS 124; EXT 101); to learn about cultural competencies in medicine and public health (CHE 121; ASA 132); or to learn more about the health care system (SOC 154; ECN 132). Students may also complete a maximum of 4 elective units on a practice or research internship (SPH 192 or SPH 199). A faculty advisor will be required for a research internship, and a faculty or community preceptor will be required for a public health practice internship.

How will students apply for the Public Health minor?

The **Advising Center** for the minor is located in the Department of Public Health Sciences, Medical Sciences 1C, Suite 181B. Students applying to the minor should contact Amber Carrere, Student Affairs Officer at PHSInstAffairs@ucdavis.edu .

Where can students get more information about the Public Health minor?

The Public Health minor will be administered by the Public Health Sciences Department in the Medical Sciences 1-C on the UC Davis campus. The Public Health minor will be supervised by Lorena Garcia, Director of Undergraduate Studies, Department of Public Health Sciences. Students in the minor will be advised by Amber Carrere, Student Affairs Officer, Department of Public Health Sciences.

For more information students can visit the minor website at:
http://phs.ucdavis.edu/education/undergraduate.php.

Students can also contact:

Amber Carrere, Student Affairs Officer
Department of Public Health Sciences - Medical Sciences 1C, Suite 181B
University of California, Davis
Davis, CA 95616
E-mail: PHSInstAffairs@ucdavis.edu
Phone: (530) 754-4992 Fax: (530) 752-0903

References

1. Institute of Medicine. The Future of Public Health. Washington, DC: National Academy Press, 1988.
2. Lieder JP, Cstrucci BC, Plepys CM, Blakely C, Burke E, Spraigue JB. On Academics: Characterizing the Growth of the Undergraduate Major. Public Health Reports. 2015; 130: 104-109.
3. Perlino, Courtney M. *Health Workforce Shortage: Left Unchecked, Will We Be Protected?* Rep. Washington, DC: American Public Health Association, 2006. Print.
4. Public Health Education and the University of California. Final Report of the Health Sciences Committee, April 2004. Accessed 4/13/15 at http://www.ucop.edu/uc-health/_files/public_health.pdf
5. Schneider M-J. Introduction to public health. 4th ed. Sudbury, Mass.: Jones and Bartlett Publishers; 2014.

Requirements for enrollment and completion of the minor

Successful completion of the minor requires the following:

- The minor must be outside the department or program of the student's major.
- A minor application must be filed with and approved by the Department of Public Health Sciences.
- Courses used to satisfy the requirements of a minor, including those completed elsewhere, must be approved by an advisor in the sponsoring department.
- Minimum overall GPA of 2.0 for coursework completed in the minor.
- To receive a minor program notation on the student's transcript, the student must successfully complete the minor's required curriculum and file a minor petition (available from the College of the student's major) no later than the deadline for filing for graduation, to get a minor program notation on the student's transcript. The transcript notation will appear as "Public Health."
- Elective courses may include up to 4 units of internship and or research credit toward the minor. For the minor: SPH 192, 198 & 199 must be taken under the supervision of a Department of Public Health Sciences faculty member and a signed/completed contract must be on file in the advising center office before taking the class.

Public Health Minor (20 units) -Proposed					
Total units required for the minor: 20					
Total l units required for the minor: 9-10 units minimum; 10-11 units from list of electives					
Required core courses (10-11 units)					
Course number	**Name**	**Units**	**Quarter Offered**	**Grade base**	**Prerequisites**
SPH 101	Introduction to Public Health (McCurdy/Pocekay)	3	W, S	A-F	
SPH 102 New course	Introduction to Human Epidemiology (Garcia)	3	F	A-F	STA 13
SPH 290	Topics In Public Health	1	F,W, S, SII	P/NP	none
	Choose One of the Following Classes:				
SPH 104	Globalization and Health (De Vogli)	3	F	A-F	SPH 101
SPH 103 New Course	Health Disparities (Garcia)	2	W	A-F	SPH 101

Required minor electives (10-11 units minimum to complete the 20 unit requirement) Some courses may require prerequisites; additional elective courses can be approved by an advisor *Only one of these courses counts toward the minor; consent of advisor or preceptor is required					
Course number	**Name**	**Units**	**Quarter Offered**	**Grade base**	**Area of Public Health Emphasis**
SOC 154	Sociology of Health Care	4		A-F	Health Policy and Administration
ECN 132	Health Economics	4	W	A-F	Health Policy and Administration
FAP 195	Healthcare to Underserved Populations	1 unit; 2 units max.	W,S	A-F	Health Policy and Administration
FAP 192C	Primary Care Clinics (1-2)	1 unit; 2 units max.	F,W,S	P/NP	Health Policy and Administration
CHE 121	Chicana/o Community Mental Health	4		A-F	Health Disparities
ASA 132	Health Issues Confronting Asian Americans and Pacific Islanders	4		A-F	Health Disparities
EXT 101	Principles of Environmental Toxicology	4	F	A-F	Environmental Health
HIS 109B	Environmental Change, Disease and public health	4		A-F	Environmental Health
CRD 149	Community Development Perspectives on Environmental Justice	4	S	A-F	Environmental Health
COM 161	Health Communication	4		A-F	Social and Behavioral Sciences
PSY 126	Health Psychology	4		A-F	Social and Behavioral Sciences
ECS 124	Theory and Practice of Bioinformatics	4		A-F	Bioinformatics
ABT 185	GIS: Applied Biological Systems Analysis	3	W	A-F	Bioinformatics
PMI 129Y	One Health: Human, Animal, & Environment	3		A-F	One Health/Global Health

	Interfaces				
ANT/STS 129	Health and Medicine in a Global Context	4		A-F	Global Health
SPH 290	Topics in Public Health Seminar	1 unit; 3 units max.	F,W,S	P/NP	General Public Health
CHI 40	Comparative Health: Top Leading Causes of Death	4	S	A-F	General Public Health/Health Disparities
SPH 92/192*	Internship in Community Health Practice	4 units maximum	F,W,S	P/NP	Internship
SPH 199*	Research in Community and International Health	4 units maximum	F,W,S	P/NP	Research
SPH 198*	198. Study in Community and International Health	4 units maximum	F,W,S	P/NP	Independent Study
SPH 198*	198. Study in Community and International Health through the **UC Davis Health Education and Promotion (HEP) Program**	4 units maximum	F,W,S	P/NP	Internship, **UC Davis Health Education and Promotion (HEP) Program**
STA 13	Elementary Statistics	4	F,W,S		Statistics
STA 100	Applied Statistics for Biological Sciences	4	F,W,S		Statistics
STA 144	Sampling Theory of Surveys	4	F		Statistics
ECON 132	Health Economics	4	W		Economics
ECON 140	Econometrics	4	W		Economics

*Students minoring in Public Health can suggest additional courses as appropriate. Courses will be reviewed by the minor Director and approved on an as needed basis.

Course Descriptions

SPH 101. Introduction to Public Health (3)
Lecture—3 hours. Prerequisite: undergraduate standing. Covers comprehensively the responsibilities, obligations, roles and professional activities of various health care disciplines in the community; provides students with perspectives on preventive medicine in society.— Graded. Offered winter and spring quarters. II. III. Pocekay, McCurdy

SPH 102. (New Course) Introduction to Human Epidemiology (3)
Lecture/Discussion-4 hours. Introduction on the fundamental principles of epidemiology, exploring patterns of disease, threats to health and epidemiological methods for prevention, control and treatment. (III) Garcia.

SPH 103. (New Course) Health Disparities in the US (2)
Lecture/Discussion-2 hours. An introduction to the research that helps understanding health disparities and social determinants in the United States; review of culturally responsive approaches. (II) Garcia.

SPH 104. Globalization and Health: Evidence and Policies (3)
Lecture/Discussion - 3 hours. Open to undergraduate and graduate level students. The course Globalization and Health brings all these questions together to investigate the multiple effects of globalization on health and emphasizes available evidence and policies.-(I) De Vogli

SOC 154. Sociology of Health Care (4)
Lecture—3 hours; Discussion—1 hour or term paper or research project. Overview of sociological research in medicine and health care, with emphasis on the organizational, institutional, and social psychological aspects. GE credit: SocSci | SS.

ECN 132. Health Economics (4)
Lecture—3 hours; Discussion—1 hour. Prerequisite: course 100 or consent of instructor. The health care market, emphasizing the role and use of economics. Individual demand, provision of services by doctors and hospitals, health insurance, managed care and competition, the role of government access to health care.—II. (II.) Cameron

FAP 192C. Primary Care Clinics (1–2)
Clinical activity—6–8 hours; seminar—2 hours; lecture—1–2 hours. Prerequisite: consent of instructor, enrollment at the UC Davis campus, upper-division standing. Students must apply and interview with the Board of Clinica Tepati or Imani Clinic. Field experience introduces students to health care delivery, patient histories and physical examinations, health promotions and disease prevention, diagnosis and treatment of episodic, acute and chronic illness, basic laboratory testing and appropriate referral and follow-up. May be repeated for credit. (P/NP grading only.)—I, II, III, IV. (I, II, III, IV.) Edison-Ton, Hitzeman, Smith 2 units max to be used for minor.

FAP 195. Health Care to Underserved Populations (1)
Lecture—1 hour. Prerequisite: sociology, political science, or applied behavioral science background recommended, or registration in medical school. Discusses sociocultural perspectives of underserved populations in California impacting their health; roles of family/interpersonal relationships in making health care decisions; and clinician's perspectives in treating people of cultures which are unfamiliar and/or uncomfortable with Western medicine. May be repeated for credit. (P/NP grading only.)—II, III. (II, III.) Nesbitt

CHI 40. Comparative Health: Top Leading Causes of Death (4)
Lecture/Discussion—3 hours; discussion—1 hour.
Prerequisite: Statistics 13 or consent by instructor. Introduction to the epidemiology of the leading causes of death for ethnic/racial minorities. Assessment of disproportionate rates at which ethnic/racial minorities suffer and die

from chronic and infectious diseases and injuries and statistical methods used to calculate these rates. Not open for credit to students who have completed course 40S. GE credit: SciEng, Div, Wrt | QL, SE, WE.—II.

CHI 121. Chicana/o Community Mental Health (4)
Lecture—3 hours; term paper. Prerequisite: course 10 or 20. Mental health needs, problems, and service utilization patterns of Chicanas/os and Latinas/os will be analyzed. An analysis of social service policy, and the economic context of mental health programs. Offered Alternate Years. GE credit: SocSci, Div, Wrt | ACGH, DD, OL, SS, WE.—Flores

ASA 132. Health Issues Confronting Asian Americans and Pacific Islanders (4)
Lecture/Discussion—4 hours. Health issues confronting Asian Americans and Pacific Islanders. (Same course as Public Health Sciences 132.) GE credit: SocSci | SS.

EXT 101. Principles of Environmental Toxicology (4)
Lecture—3 hours; Discussion—1 hour. Prerequisite: Chemistry 8B, 118B, or 128B and Biological Sciences 1A. Principles of toxicology with a focus on environmental, industrial, and natural chemicals. Topics include fate and effects of chemicals in organisms and the environment, air pollutants, insecticides, aquatic toxicology, endocrine disruptors, biomarkers and bioassays, and risk assessment. GE credit: SciEng | SE, SL.—I. (I.) Denison

HIS 109B. Environmental Change, Disease and Public Health (4)
Lecture/Discussion—3 hours; term paper. Analysis of environmental changes from pre-history to the present and their influence on disease distribution, virulence and public health; many of these changes have been driven by human action and transformations of pathogens have accelerated under globalization. GE credit: SciEng or SocSci, Div | SE or SS, SL.—I. (I.) Davis

CRD 149. Community Development Perspectives on Environmental Justice (4)
Lecture/Discussion—4 hours; extensive writing or discussion; project; term paper. Prerequisite: social science research methods course. Environmental justice social movements; inequitable distribution of pollution on low-income communities of color; histories, policies, and innovations associated environmental justice movements in the United States and around the world. Offered in alternate years. GE credit: SocSci, Div, Wrt | DD, OL, SS, VL, WE.—III. London

COM 161. Health Communication (4)
Lecture/Discussion—4 hours. Health communication theories and research, including a review of research on health literacy, social support and coping, doctor-patient interaction, health communication campaigns, and media influences on health. Application of new communication technologies in health promotion. GE credit: SocSci | SS.—III. (III.) Bell

PSY 126. Health Psychology (4)
Lecture—4 hours. Prerequisite: course 1, 41, 101. Pass One open to Psychology majors only. Psychological factors influencing health and illness. Topics include stress and coping, personality and health, symptom perception and reporting, heart disease, cancer, compliance, and health maintenance and promotion. Not open for credit to students who have completed course 160.—II, III. (II, III.) Emmons, Moons

ANT /STS 129. Health and Medicine in a Global Context (4)
Lecture/discussion—3 hours; term paper. Prerequisite: course 2 or Science and Technology Studies 1. Recent works in medical anthropology and the science studies of medicine dealing with social and cultural aspects of global health issues such as AIDS, pandemics, clinical trials, cultural differences in illnesses, diabetes, organ trafficking, medical technologies, illness narratives, and others. *(Same course as Science and Technology Studies 129.)* GE credit: SocSci, Div, Wrt | SS, WC, WE.

ECS 124. Theory and Practice of Bioinformatics (4)
Lecture—3 hours; Laboratory—1 hour. Prerequisite: course 10 or 30 or Engineering 6; Statistics 12 or 13 or 32 or 100 or 131A or Mathematics 135A; Biological Science 1A or Molecular and Cellular Biology 10. Fundamental biological, mathematical and algorithmic models underlying bioinformatics and systems biology; sequence analysis, database search, genome annotation, clustering and classification, functional gene networks, regulatory network inference, phylogenetic trees, applications of common bioinformatics tools in molecular biology and genetics. GE credit: SciEng | SE.—III. (III.) Gusfield, Filkov, Tagkopoulos

PMI 129Y. One Health: Human, Animal & Environment Interfaces (3)
Lecture/discussion—3 hours; web electronic discussion. Class size limited to upper division undergraduate students in good standing with the school and who fulfill the course prerequisites below. Enrollment limited to 100 students/term. Introduction to fundamentals, challenges, and opportunities in One Health using local and global health case studies. Animal, human, and environmental health problems, along with tools and transdisciplinary approaches, will be introduced to foster innovative thinking that addresses complex issues. GE credit: SciEng or SocSci | OL, SE or SS, SL.—III. (III.) WA Smith

***SPH 92/192. Internship in Community Health Practice (1-12)**
Internship—3-36 hours. Prerequisite: upper division and graduate students; consent of instructor. The student, through fieldwork in a community health agency, learns to apply theory and concepts learned in the classroom. (P/NP grading only) *4 unit's maximum for minor. This course is to be arranged by the student and interested faculty.*

***SPH 198. Study in Community and International Health (1-5)**
Prerequisite: undergraduate standing and consent of instructor. Study and experience for undergraduate students in any number of areas in community and international health. (P/NP grading only.) *4 unit's maximum for minor. This course is to be arranged by the student and interested faculty.*

***SPH 198. Study in Community and International Health through the UC Davis Health Education and Promotion (HEP) Program**
1 unit per quarter for nonpaid volunteers; up to two units per quarter for paid student staff who work for HEP. Students need to contact Polly Paulson directly for course approval, pcpaulson@ucdavis.edu. (P/NP grading only)- I, II, III. (I, II, III.)

(Both paid and volunteer student positions with HEP require an application and interview. The selection process takes place Winter quarter for the paid student assistant positions and Spring quarter for unpaid volunteer positions for the following full academic year. Refer to http://healthcenter.ucdavis.edu/hep/student-positions.html for more information and application deadlines.)

***SPH 199. Research in Community and International Health (1-5)**
Prerequisite: undergraduate standing; consent of instructor. Student will work with faculty member in areas of research interest, including but not limited to injury control, international health, health policy, occupational and environmental health, health promotion and wellness, women's health, and health demographics. (P/NP grading only) *4 unit's maximum for minor. This course is to be arranged by the student and interested faculty.*

SPH 290. Topics in Public Health (1)
Seminar—1.5 hours. Prerequisite: open to students in Master of Public Health program or consent of instructor. Seminar on key issues and current topics in public health. Course begins in August SSII. Students must enroll in August, then Fall and Winter. The course is a series but grades and units are given at end of each quarter. May be repeated up to four times for credit. (S/U grading only.)—I, II, III, IV. (I, II, III. IV.) Kass, McCurdy, Koga, Schenker

STA 13. Elementary Statistics (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: two years of high school algebra or the equivalent in college. Descriptive statistics; basic probability concepts; binomial, normal, Student's t, and chi-square distributions. Hypothesis testing and confidence intervals for one and two means and proportions. Regression. Not open for credit to students who have completed course 13V or higher. GE credit: SciEng | QL, SE.—I, II, III. (I, II, III.)

STA 100. Applied Statistics for Biological Sciences (4)
Lecture—3 hours; laboratory—1 hour. Prerequisite: Mathematics 16B or the equivalent. Descriptive statistics, probability, sampling distributions, estimation, hypothesis testing, contingency tables, ANOVA, regression; implementation of statistical methods using computer package. Only two units credit allowed to students who have taken course 13, 32 or 103. Not open for credit to students who have taken course 102. GE credit: SciEng | QL, SE.—I, II, III. (I, II, III.)

STA 144. Sampling Theory of Surveys (4)
Lecture—3 hours; discussion/laboratory—1 hour. Prerequisite: course 130B or 131B. Simple random, stratified random, cluster, and systematic sampling plans; mean, proportion, total, ratio, and regression estimators for these plans; sample survey design, absolute and relative error, sample size selection, strata construction; sampling and nonsampling sources of error. Offered in alternate years. GE credit: SciEng | QL, SE.—(I.)

ECN 132. Health Economics (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 100 or consent of instructor. The health care market, emphasizing the role and use of economics. Individual demand, provision of services by doctors and hospitals, health insurance, managed care and competition, the role of government access to health care.—II. (II.) Cameron

ECN 140. Econometrics (4)
Lecture—3 hours; discussion—1 hours. Prerequisite: course 102, course 100 and course 101; Mathematics 16A and 16B or Mathematics 21A and 21B; Statistics 13, or any upper division Statistics course. Problems of observation, estimation and hypotheses testing in economics through the study of the theory and application of linear regression models. Critical evaluation of selected examples of empirical research. Exercises in applied economics. Not open for credit to students who have enrolled in or completed Agricultural and Resource Economics 106.—II. (II.)