



**University Senate  
TRANSMITTAL FORM**

<b>Senate Document #:</b>	16-17-18
<b>PCC ID #:</b>	16009
<b>Title:</b>	Establish a Master of Science in Environmental Health Sciences
<b>Presenter:</b>	Andrew Harris, Chair, Senate Programs, Curricula, and Courses Committee
<b>Date of SEC Review:</b>	October 19, 2016
<b>Date of Senate Review:</b>	November 2, 2016
<b>Voting (highlight one):</b>	<ol style="list-style-type: none"> <li>1. On resolutions or recommendations one by one, or</li> <li>2. In a single vote</li> <li>3. To endorse entire report</li> </ol>
<b>Statement of Issue:</b>	<p>The School of Public Health and the Maryland Institute for Applied Environmental Health (MIAEH) propose to offer a new Master of Science in Environmental Health Sciences. Environmental health is a branch of public health centered on all aspects of the natural and built environment that may affect human health. This degree will focus on human health, environmental epidemiology, risk assessment, environmental justice, and occupational health. This degree is proposed in tandem with a Ph.D. in Environmental Health Sciences. The M.S. degree is proposed to offer those students who cannot complete the doctoral program with an option to complete the required course work and earn a master's level credential in this field. Though not finishing the Ph.D. degree, students who earn the M.S. degree will still be qualified for careers in environmental health, which has been identified as a critical area of need by the US Department of Health and Human Services and the Centers for Disease Control and Prevention.</p> <p>The proposed program will require 31 credits composed of required courses and electives. Required courses include the following: MIEH600 Foundations of Environmental Health (3 Credits); MIEH720 Principles of Toxicology (3 Credits); MIEH740 Risk Assessment (3 Credits); MIEH771 Exposure Assessment of Environmental Hazards (3 Credits); EPIB610 Epidemiology I (3</p>

	<p>Credits); and EPIB 650 Biostatistics I (3 Credits). Students will also be required to take 7 to 12 supporting credits in areas of environmental health research, ethics, and public health. Students will also be required to take 6 credits of thesis research or take an independent study and a 3-credit elective course if they choose the non-thesis option.</p> <p>No additional resources are requested for this program. The existing administrative and faculty resources that exist in MIAEH are sufficient to offer this program.</p> <p>This proposal was approved by the Graduate School Programs, Curricula, and Courses committee on September 26, 2016, and was approved by the Senate Programs, Curricula, and Courses committee at its meeting on October 7, 2016.</p>
<b>Relevant Policy # &amp; URL:</b>	N/A
<b>Recommendation:</b>	The Senate Committee on Programs, Curricula, and Courses recommends that the Senate approve this new degree program.
<b>Committee Work:</b>	The committee considered this proposal at its meeting on October 7, 2016. Stephen Roth, Associate Dean of the School of Public Health and Interim Director of MIAEH, presented the proposal and responded to questions from the committee. After discussion, the committee voted unanimously to recommend the proposal.
<b>Alternatives:</b>	The Senate could decline to approve this new program.
<b>Risks:</b>	If the Senate declines to approve this new program, the university will lose an opportunity to use existing resources and faculty expertise to address a national need for experts in environmental health.
<b>Financial Implications:</b>	There are no significant financial implications with this proposal.
<b>Further Approvals Required:</b>	If the Senate approves this proposal, it would still require further approval by the President, the Board of Regents, and the Maryland Higher Education Commission.

**University of Maryland PCC  
Program/Curriculum/Unit Proposal**

PCC Log No:

16009

**Program:** Proposal for MS program in Environmental Health Sciences

**Department/Unit:** Maryland Institute for Applied Environmental Health

**College/School:** School of Public Health

**Proposal Contact Person (with email):** Stephen Roth, sroth1@umd.edu

**Type of Action (check one):**

Curriculum change (includes modifying minors, concentrations/specializations and creating informal specializations)

Curriculum change is for an LEP Program

Rename a program or formal Area of Concentration

Establish/Discontinue a formal Area of Concentration

Other:

Establish a new academic degree/certificate program

Create an online version of an existing program

Establish a new minor

Suspend/Discontinue a degree/certificate program

Establish a new Master or Certificate of Professional Studies program

New Professional Studies program will be administered by Office of Extended Studies

*Italics indicate that the proposal must be presented to the full University Senate for consideration.*

**Approval Signatures** - Please print name, sign, and date. For proposals requiring multiple unit approvals, please use additional cover sheet(s).

1. Department Committee Chair Amy R. Sapkota Amy R. Sapkota 2/29/16

2. Department Chair Stephen M Roth SRoth 29 Feb 2016

3. College/School PCC Chair Robin Sawyer Rob G. Sawyer 4/1/16

4. Dean JANE E. CLARK Jane E. Clark 4/1/16

5. Dean of the Graduate School (if required) \_\_\_\_\_

6. Chair, Senate PCC Andrew Harris Andrew Harris 10/7/16

7. University Senate Chair (if required) \_\_\_\_\_

8. Senior Vice President and Provost \_\_\_\_\_

**Instructions:**

When approved by the dean of the college or school, please send the proposal and signed form to the Office of the Associate Provost for Academic Planning and Programs, 1119 Main Administration Building, Campus-5031, **and** email the proposal document as an MSWord attachment to [pcc-submissions@umd.edu](mailto:pcc-submissions@umd.edu).

**Summary of Proposed Action (use additional sheet if necessary):**

This proposal seeks to establish a MS degree in Environmental Health Sciences for the School of Public Health, administered by the faculty within the Maryland Institute for Applied Environmental Health (MIAEH). The degree will focus on human health, environmental epidemiology, risk assessment, environmental justice, and occupational health consistent with the areas of expertise of the MIAEH faculty. MIAEH currently offers students flexible and individualized programs of study that lead to the Master of Public Health in Environmental Health Sciences as well as a PhD program in Toxicology that is administered by the USM. This proposal is concurrent with a proposal to establish a PhD degree in Environmental Health Sciences. The present MS degree will initially not admit students, but be available for students who do not complete the PhD program but instead choose to complete the master's degree requirements (i.e., an "off-ramp" MS degree).

**Unit Code(s)** (to be entered by the Office of Academic Planning and Programs):

PROPOSAL FOR  
NEW INSTRUCTIONAL PROGRAM  
UNIVERSITY OF MARYLAND AT COLLEGE PARK, MARYLAND

**M.S. in Environmental Health Sciences**

School of Public Health

Dean Jane Clark

M.S. Fall 2016 (with new admits anticipated Fall 2017 or later)

## I. OVERVIEW and RATIONALE

A. *Briefly describe the nature of the proposed program and explain why the institution should offer it.*

This proposal seeks to establish a M.S. degree in Environmental Health Sciences for the School of Public Health, administered by the faculty within the Maryland Institute for Applied Environmental Health (MIAEH). The degree will focus on human health, environmental epidemiology, risk assessment, environmental justice, and occupational health consistent with the areas of expertise of the MIAEH faculty. MIAEH currently offers students flexible and individualized programs of study that lead to the Master of Public Health in Environmental Health Sciences as well as a Ph.D. program in Toxicology that is administered by the USM.

This proposal is concurrent with a proposal to establish a Ph.D. degree in Environmental Health Sciences. The present M.S. degree will initially not admit students, but will be offered as an exit path for doctoral candidates who cannot or choose not to complete the Ph.D., or to those students who successfully complete the requirements and opt to obtain the additional credential.

MIAEH was established in 2006 with a mission to carry out research on a broad range of environmental factors and their effects on human health. Faculty members in MIAEH collaborate with state, federal, international and private agencies to develop research solutions that address pressing environmental and occupational health problems. Students will gain expertise in areas including exposure assessment, environmental epidemiology, environmental microbiology, children's environmental health, environmental justice, and risk assessment. They will also obtain a broad appreciation of public health as required for students graduating from a School of Public Health accredited by the Council on Education in Public Health.

Thus, this degree program would be distinct from the environmental science-related degrees offered by AGNR and CMNS, which focus primarily on ecosystem health and environmental science (e.g., graduate programs in Environmental Science and Technology, Environmental Science and Policy, and the system program in Marine, Estuarine and Environmental Sciences currently offered by other colleges, AGNR and CMNS, respectively).

Nearly every top 40 School of Public Health in the U.S. offers a M.S. in Environmental Health Sciences and UMD will be more competitive in attracting top students with such a degree. The only M.S. program in Environmental Health Sciences in Maryland is offered at Johns Hopkins University, a private institution. Other masters degree programs in Maryland are related to environmental science or environmental engineering and do not conflict with the proposed program.

Development of the environmental health workforce has been a key concern of the U.S. Department of Health and Human Services for many years. For example, the *Healthy People 2010* publication articulated the concern that public health infrastructure in several areas, including environmental health, was lacking and that workforce development

opportunities need to be expanded. In particular for the present proposal, the Centers for Disease Control and Prevention (CDC) has noted the paucity of leaders in environmental health and raised the concern that impending retirements and vacancies will leave the environmental health leadership ranks severely understaffed (supporting documents and statements can be found at <http://www.cdc.gov/nceh/ehs/activities/training.htm>). As such, the development of a master's program (linked with a doctoral program) in environmental health sciences at a public land-grant university will help support the workforce development needs of the field.

An important distinction should be made between the currently offered MPH (curriculum shown in Appendix 1) and proposed M.S. degree programs in Environmental Health Sciences. The MPH is a professional, practitioner's degree, and is anticipated as a terminal degree for individuals wishing to pursue career options in public health practice. In contrast, the M.S. degree is a scholarly-based degree and is not envisioned as a terminal degree for most students. For students who complete only an M.S. degree, they would have basic scholarly training and background suitable for some career options in environmental health (e.g., research careers), but those would differ from the careers sought by MPH graduates (e.g., practitioner careers). In our case, the M.S. would be considered a lead-in degree to a Ph.D. program. We envision the M.S. will most typically be used as an off-ramp degree for those students enrolled as bachelor degree carriers who no longer wish to complete the Ph.D. program.

*B. How big is the program expected to be? From what other programs serving current students, or from what new populations of potential students, onsite or offsite, are you expecting to draw?*

We expect a very small M.S. degree student population of 2-3 students, with the expectation that the M.S. degree will have few if any direct-admits and a small number of former Ph.D. students who do wish to complete the M.S. degree requirements instead. The majority of faculty members anticipate mentoring 1-2 Ph.D. students, with a total of 10-15 Ph.D. students in the Ph.D. program.

## **II. CURRICULUM**

*A. Provide a full catalog description of the proposed program, including educational objectives and any areas of concentration.*

Students in the M.S. program in Environmental Health Sciences at the Maryland Institute for Applied Environmental Health (MIAEH) in the School of Public Health will complete an essential core of knowledge in environmental health, epidemiology and biostatistics, in addition to a laboratory rotation, an ethics course, and a seminar course.

### **Degree Requirements**

The M.S. program in Environmental Health Sciences consists of a minimum of 31 credit hours of graduate courses. Graduate courses include (1) core courses within environmental

health, epidemiology and biostatistics; (2) supporting courses in environmental health research, ethics, and public health; and (3) non-thesis project or thesis credits. Program requirements for a M.S. degree with the non-thesis project include successful completion of an oral defense of a written non-thesis project proposal, a minimum of 6 credits of independent study credits, a final written project, and a final oral non-thesis project defense. Program requirements for a M.S. degree with the thesis include successful completion of an oral defense of a written thesis research proposal, and a minimum of 6 credits of M.S. thesis research, written thesis, and a final oral thesis defense. The program can be completed on either a full- or part time basis.

Students must file with the graduate program director a preliminary program of study, signed by their advisor, before registering for their first semester of classes and an amended, final plan of study before the start of their second semester approved by their advisor and the graduate director. Because we anticipate students will enter the M.S. after initially beginning the Ph.D. program, we expect students will take greater than the minimum of 31 credits required for the M.S. degree.

The procedures for the thesis defense are as specified in the Graduate School Catalog. In general, a committee of three MIAEH graduate faculty members will serve on non-thesis project and thesis committees.

*B. List the courses (number, title, semester credit hours) that would constitute the requirements and other components of the proposed program. Provide a catalog description for any courses that will be newly developed or substantially modified for the program.*

See Table 1: M.S. Program in Environmental Health Sciences

No new courses are proposed beyond those already offered in the School of Public Health.

<b>Table 1: M.S. Program in Environmental Health Sciences</b>		
	<b>Course Title</b>	<b>Credits</b>
<b>Core Courses</b> (18 Required Credits)	MIEH 600 Foundations of Environmental Health	3
	MIEH 720 Principles of Toxicology	3
	MIEH 740 Risk Assessment	3
	MIEH 771 Exposure Assessment of Environmental Hazards	3
	EPIB 610 Epidemiology I	3
	EPIB 650 Biostatistics I	3
<b>Supporting Courses</b> (7 to 12 Required Credits)	MIEH 609 Methods in Toxicology and Environmental Health (1 rotation)*	3
	EPIB 641 Ethics in Public Health	1
	MIEH 688 Environmental Health Seminar	2
	Course(s) that will expose the student to concepts in health behavior and health services administration (This could include HLTH 665, HLSA 601 or a survey course that covers all five foundation areas of public health.)	1 to 6
<b>Students must select the Thesis or Non-Thesis Option:</b>		
<b>Non-Thesis Option</b> (6 Required Credits)	MIEH 789 Independent Study (completion of a scholarly project)	3
	Elective course	3
OR		
<b>Thesis</b> (6 Required Credits)	MIEH 799 Masters Thesis Research	6

\* Rotations can be in physical labs or with faculty conducting non-laboratory based research.

C. *Describe any selective admissions policy or special criteria for students selecting this field of study.*

For any students directly admitted into the M.S. program, we will use the same admission requirements as the MPH program in Environmental Health Sciences, included here:

Application Requirements:

1. Minimum 3.0 undergraduate GPA;
2. Undergraduate transcripts;
3. GRE scores taken within the past 5 years;
4. Three letters of recommendation that address the applicant's academic capabilities and probability of success in graduate school;
5. Statement of goals and interests and their congruence with those of the program;
6. Relevant academic/work experience, including previous coursework in biology, chemistry, mathematics, statistical methods, and/or statistical software packages.

To apply to the M.S. program in Environmental Health Sciences, applicants must complete their application in SOPHAS: [www.sophas.org](http://www.sophas.org)

### III. STUDENT LEARNING OUTCOMES AND ASSESSMENT

- A. *List the program's learning outcomes and explain how they will be measured.*
- B. *Include a general assessment plan for the learning outcomes. (In lieu of a narrative for both IIIA and IIIB, you may attach the program's learning outcomes assessment forms.)*

Competencies, Outcomes, and Assessments

#### **1. Demonstrate a comprehensive understanding of the interdisciplinary field of environmental health.**

Measure: Successful completion of the final project in MIEH 771, which entails an analysis of exposure data, interpretation of statistical analyses and drafting of a manuscript in a journal article format.

Criterion: 90% of graduates will complete the final project with “satisfactory” or better performance.

Assessment: Student performance will be assessed after there are at least four

graduates from the program and annually thereafter.

**2. (for M.S. non-thesis project students) Develop a testable hypothesis that would advance the field of environmental health.**

Measure: Successful completion of a non-thesis project that proposes a testable hypothesis related to a current environmental health issue.

Criterion: 90% of graduates will successfully complete the non-thesis project within 2 years of matriculation into the M.S. program.

Assessment: The time to graduation will be assessed after there are at least four graduates from the program and annually thereafter.

**3. (for M.S. thesis students) Design and conduct a research study, analyze data and test a hypothesis that advances the science of environmental health.**

Measure: Successful completion of thesis research and submission of a completed M.S. thesis.

Criterion: 80% of graduates will successfully defend and submit a thesis within 2 years of matriculation into the M.S. program.

Assessment: The time to graduation will be assessed after there are at least four graduates from the program and annually thereafter.

#### **IV. FACULTY AND ORGANIZATION**

- A. *Who will provide academic direction and oversight for the program? [This might be a department, a departmental subgroup, a list of faculty members, or some other defined group.]*

The Maryland Institute for Applied Environmental Health (MIAEH) will provide academic direction and oversight for the program, in collaboration with our colleagues in SPH and across campus.

- B. *If the program is not to be housed and administered within a single academic unit, provide details of its administrative structure. This should include at least the following:*

#### **V. OFF CAMPUS PROGRAMS**

Not applicable.

## **VI. OTHER ISSUES**

- A. *Describe any cooperative arrangements with other institutions or organizations that will be important for the success of this program.*

None.

- B. *Will the program require or seek accreditation? Is it intended to provide certification or licensure for its graduates? Are there academic or administrative constraints as a consequence?*

No.

## **VII. COMMITMENT TO DIVERSITY**

Identify specific actions and strategies that will be utilized to recruit and retain a diverse student body.

The MIAEH faculty are a diverse group (e.g., 50% women; 50% underrepresented minorities) committed to recruiting, retaining, and graduating a diverse student body. Many of the faculty focus their research efforts on issues that impact health disparities. The faculty will use their networks of colleagues and professional organizations to ensure a diverse pool of applicants from which to recruit, retain, and graduate a diverse and excellent student body.

## **VIII. REQUIRED PHYSICAL RESOURCES**

- A. *Additional library and other information resources required to support the proposed program. You must include a formal evaluation by Library staff.*

None required.

- B. *Additional facilities, facility modifications, and equipment that will be required. This is to include faculty and staff office space, laboratories, special classrooms, computers, etc.*

None required.

- C. *Impact, if any, on the use of existing facilities and equipment. Examples are laboratories, computer labs, specially equipped classrooms, and access to computer servers.*

Because we anticipate that nearly all of our future M.S. students will “off-ramp” from our Ph.D. program in Environmental Health Sciences, we foresee little impact on existing facilities.

## **IX. RESOURCE NEEDS and SOURCES**

Describe the resources that are required to offer this program, and the source of these resources. Project this for five years. In particular:

- A. *List new courses to be taught, and needed additional sections of existing courses. Describe the anticipated advising and administrative loads. Indicate the personnel resources (faculty, staff, and teaching assistants) that will be needed to cover all these responsibilities.*

We anticipate no significant change in enrollments of our existing courses due to the proposed M.S. degree program. MIAEH has the necessary faculty to teach the necessary courses and advise master’s degree students. No new resources are requested.

- B. *List new faculty, staff, and teaching assistants needed for the responsibilities in A, and indicate the source of the resources for hiring them.*

None anticipated or needed.

- C. *Some of these teaching, advising, and administrative duties may be covered by existing faculty and staff. Describe your expectations for this, and indicate how the current duties of these individuals will be covered, and the source of any needed resources.*

Our current faculty are in a position to provide all necessary teaching and advising support for the M.S. degree program.

- D. *Identify the source to pay for the required physical resources identified in Section VIII, above.*

Not applicable.

- E. *List any other required resources and the anticipated source for them.*

None.

- F. *Provide the information requested in [Table 1](#) and [Table 2](#) (for Academic Affairs to include in the external proposal submitted to USM and MHEC).*

See proposal for the doctoral program. Students will not be directly admitted to the master’s program so there is no separate budget.

## Appendix 1: Curriculum for MPH in Environmental Health Sciences

Curriculum	Courses	Credits
Core	EPIB 610 Foundations of Epidemiology	3
	EPIB 650 Biostatistics 1	3
	HLSA 601 Intro. to Health Systems	3
	MIEH 600 Foundations of Environmental Health	3
	HLTH 665 Health Behavior I	3
Cognate	MIEH 740 Risk Assessment	3
	MIEH 720 Principles of Toxicology	3
	MIEH 770 Law and Policy in Environmental Health	3
	MIEH 771 Exposure Assessment	3
	MIEH 780 Environmental and Occupational Hygiene	3
	EPIB 641 Public Health and Research Ethics	1
	EPIB 651 Biostatistics II	3
Capstone or Thesis	MIEH 785 Internship in Public Health	3
	MIEH 786 Capstone Project in Public Health or MIEH 799 Thesis**	3/6
Electives*	Public Health Electives, with advisement	3/6
	<b>Total Credits</b>	<b>46</b>

*\*The electives must be public health related. Up to 6 credits may be transferred from another institution and 12 from UMCP, provided that the courses are at a graduate level and have not been counted for any other degree. You must apply to transfer the credits using the form Request for Transfer or Inclusion of Graduate Credit, available on the MIAEH website under Student Forms.*

*\*\*If a student chooses the thesis option, he/she must register for 6 credits of thesis to graduate.*



# UNIVERSITY OF MARYLAND

1426 An. Sci./Ag. Eng. Bldg.  
College Park, MD 20742  
Phone 301-405-1306  
FAX 301-314-9023

*Department of Environmental Science and Technology*

February 29, 2016

Dr. Stephen Roth  
Professor and Interim Director  
Maryland Institute for Applied Environmental Health  
School of Public Health  
University of Maryland  
College Park, Maryland 20742

Dear Dr. Roth,

The faculty of the Department of Environmental Science and Technology in our Ecosystem Health and Natural Resource Management Graduate Program have reviewed both the MS and PhD Program Proposals in Environmental Health Sciences. We strongly support the development of these two degree programs and will collaborate fully with you in ensuring that they are a success.

Please contact me if you have any further questions or need assistance at [wbowerma@umd.edu](mailto:wbowerma@umd.edu) or by phone at 301-405-1306. Good luck.

Sincerely,

A handwritten signature in black ink, appearing to read "William W. Bowerman".

William W. Bowerman, Ph.D.  
Professor and Chair

**Subject:** Re: MS Proposal for Env Health Sci

**Date:** Tuesday, April 12, 2016 at 11:37:28 PM Eastern Daylight Time

**From:** Wolfgang Losert

**To:** Stephen M. Roth

Dear Steve

just like the PhD proposal, this proposal has CMNS support. No concerns were raised by the CMNS graduate program directors.

best regards

Wolfgang Losert

On 2/29/2016 2:42 PM, Stephen M. Roth wrote:

Dear Wolfgang,

Please find attached a forthcoming PCC proposal for a MS program in Environmental Health Sciences coming from SPH (which effectively parallels the PhD proposal you just reviewed last week). Having CMNS approval would be valuable as we move into the PCC process. I would appreciate very much your support of this program. Please contact me with any questions.

Thank you,  
Steve

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Stephen M. Roth, Ph.D.  
Professor & Interim Director  
Maryland Institute for Applied Environmental Health  
School of Public Health  
University of Maryland  
College Park, MD 20742  
301-405-2504; fax 301-405-8397  
<http://www.sph.umd.edu/miaeh>

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Wolfgang Losert, Professor of Physics  
Interim Associate Dean  
Director, Partnership for Integrative Cancer Research  
College of Computer, Mathematical, and Natural Sciences  
University of Maryland

Physical Sciences Complex Room 1147, p: 301-405-0629  
<http://www.ireap.umd.edu/losertlab/>

**DATE:** April 15, 2016

**TO:** Stephen M. Roth, Professor, Applied Environmental Health (MIAEH), Kinesiology, Office of the Dean & Associate Dean for Educational Innovation; Interim Director of the Maryland Institute for Applied Environmental Health

**CC:** Daniel Mack, Associate Dean for Collection Strategies and Services, Libraries  
Margaret Saponaro, Interim Head, Collection Development, Libraries

**FROM:** Nedelina Tchangalova, Physical Sciences & Public Health Librarian

**RE:** Library Resources to Support New Instructional Program – MS in Environmental Health Sciences

The University of Maryland (UM) Libraries' mission is "to enable the intellectual inquiry and learning required to meet the education, research and community outreach mission of the University." Currently they support undergraduate and graduate students in a variety of face-to-face, online and distance learning programs, as well faculty working collaboratively with internal and external partners. The University of Maryland Libraries collections will continue adequately support the instruction and research needs of the newly proposed PhD program in Environmental Health Sciences.

As a department with strong ties with other departments/schools on and off campus, the Maryland Institute for Applied Environmental Health is confident that library resources are readily available and accessible. Ease of access and flexible availability of library materials is paramount, and researchers, as well students expect this flexibility to be coupled with high academic quality and integrity. The current purchasing practices and available collections at the UM Libraries will ensure that these two goals can be met, both now and for the life of the department. In addition, the establishment of the new Collaborative School of Public Health provides even greater access and flexible availability; the School of Public Health (SPH) students and faculty at the University of Maryland—College Park (UMCP) have access to the Health Sciences and Human Services Library at the University of Maryland—Baltimore (UMB). Thus, the broader medical and global health journals available there are a part of UM Libraries available resources without additional expenditures. Moreover, UM Libraries' existing public health and collections of journals and databases will continue to support the research and teaching needs of the Maryland Institute for Applied Environmental Health.

### **Public & Environmental Health Science Library Collections**

While the Maryland Institute for Applied Environmental Health is part of the School of Public Health, many of their faculty members have secondary appointments to other UMCP departments and UMB. McKeldin Library supports the undergraduate and graduate students in SPH, housing the majority of the monographs and serials pertaining to public health in general, and environmental health in particular. A significant portion of these collections are electronically accessible, both on and off campus, and therefore are not location dependent.

#### **1. Monographs**

The Libraries' current collection of books related to environmental health is sufficient to meet the needs of the department. The ongoing acquisition of scholarly books is expected to be adequately covered through existing acquisition practices and budgeting. As a land grant institution, the University of Maryland already has a tradition of emphasizing public health, including environmental health, epidemiology, environmental justice,

and occupational health, and current collection development practices in the Libraries already support these topics.

At this time, UM Libraries have access to several multidisciplinary ebook collections related to human and environmental health, and health policy and law (*Credo Reference, ebrary, EBSCO ebook collection, Gale Virtual Reference Library, Springer, World Scientific eBooks* and more). Due to the UM Libraries' purchasing preference for electronic materials, especially prevalent across the STEM fields, the number of electronic book collections is expected to continue to increase significantly in the coming years.

## 2. Electronic Resources: Journals and Databases

The Libraries' current list of subscriptions includes both core and related journals that support research and teaching in public and environmental health, and policy.

A search was performed in *Journal Citation Reports 2014* (JCR), a database that uses citation data to rank and determine the impact factor of journals in an academic field. To support the existing courses, at the present time the Libraries provide access to all of the top ten ranked journals from the JCR categories of *Environmental Sciences*, and *Public, Environment & Occupational Health*.

While other aspects of public and environmental health, and policy do not fall as neatly into a JCR-specified category, the UM Libraries provide access to numerous highly ranked journals from cross-sections of the JCR categories of Agricultural Economics & Policy, Behavioral Sciences, Family Studies, Law, Political Science, Public Administration, as well as the majority of top ten ranked journals from all engineering disciplines.

Relevant top-ranked titles include:

- *Energy & Environmental Science*
- *Nature Climate Change*
- *Global Change Biology*
- *Environmental Health Perspectives*
- *Frontiers in Ecology and the Environment*
- *Lancet Global Health*
- *International Journal of Epidemiology*
- *Epidemiologic Reviews*
- *Annual Review of Public Health*
- *Epidemiology*

In addition to journal subscriptions, the UM Libraries subscribe to the following significant databases, that will support the department by providing access to the previously mentioned journals as well as other relevant resources:

- *Academic Search Complete (EBSCO)*
- *Congressional Publications (ProQuest)*
- *Environmental Science Collection (ProQuest)*
- *Environmental Studies in Video*
- *Environment & Energy Daily*
- *Health Reference Policy Center (EBSCO)*
- *Public Health (ProQuest)*
- *PubMed*

At this time, the UM Libraries' purchasing preference is for electronic materials (i.e. those that can be accessed online), a trend that will serve to enhance research and teaching experience. This is especially relevant to the collaboration initiatives, where online flexibility is presented with no reduction in educational and research quality. The UM Libraries purchasing and access priorities are in line with this goal.

## **Interlibrary Loan & Article Express**

With the admission of the University of Maryland into the Committee for Institutional Cooperation (CIC), the academic arm of the Big Ten, our faculty and students are able to take advantage of a number of new materials access options in the coming years. The Libraries joined the CIC UBorrow<sup>1</sup> program, which allows rapid access to the collections of other CIC member libraries.

When resources are not part of our holdings within the sixteen University System of Maryland and Affiliated Institutions (USMAI) libraries, the Interlibrary Loan unit can obtain materials from other libraries at no charge to the student or faculty. Most recent journal articles can be provided through electronic delivery, allowing students and faculty to make the most flexible use of their time.

Additionally, through the auspices of the Interlibrary Loan unit, graduate students and faculty can make use of Article Express, an electronic document delivery service for in-house materials. Article Express allows graduate students and faculty to place requests for book chapters and journal and/or conference papers that are available in print in the Libraries, and have them scanned and delivered electronically within three business days. This service is also free of charge.

## **Conclusions**

At the present time, UM Libraries holdings are adequate to support the proposed new MS program in environmental health sciences, and current purchasing preferences and trends are especially beneficial for collaborative projects and programs. While it is anticipated that this will continue, the Libraries collections are vulnerable to budget and market fluctuations. Journal collections and other continuing resources remain particularly vulnerable. The level of future support is thus dependent upon ongoing funding and other circumstances affecting continuing subscriptions.

## **Statement from Associate Dean, Collection Strategies and Services**

Nedelina Tchangalova, Physical Sciences and Public Health Librarian, has prepared this report according to standard practices for collection assessment in research libraries. I have reviewed Ms. Tchangalova's report and I concur with her findings.

Daniel C. Mack



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<sup>1</sup> <http://www.cic.net/projects/library/reciprocal-borrowing/uborrow>