



Approved by Human Anatomy & Physiology Society Board of Directors, May 25, 2013

Position Statement on Accreditation of Faculty Teaching Human Anatomy and Physiology Courses

In 2005 the Human Anatomy and Physiology Society (HAPS) developed accreditation standards for faculty teaching anatomy and physiology (A&P) based on a survey of successful A&P courses nationwide. HAPS felt that these criteria were sufficient to demonstrate that an instructor is competent to teach a 2-semester anatomy and physiology course, and the organization encouraged all accreditation agencies and college administrations to use the criteria when evaluating courses or prospective faculty. Although some institutions adopted the criteria, many schools, particularly community colleges, continue to encounter problems from accrediting review committees that put the primary emphasis for credentialing on the teacher's graduate degree, without regard for postgraduate experience and teaching efficacy.

As a result of these ongoing credentialing problems, a task force composed of members of the American Association of Anatomists (AAA), the American Association of Clinical Anatomists (AACA), the American Physiological Society (APS), and HAPS developed this position statement and the accompanying appendices. These four societies represent professionals involved in teaching and research in anatomy and physiology at all levels, from high schools through graduate and professional education.

Background

Courses in human anatomy and physiology are a major component of many programs designed for prospective health professionals. These courses may be taught as a 2-semester combined class, commonly called Anatomy and Physiology (A&P), or the two disciplines may be taught separately. The majority of students taking human anatomy and physiology are planning a career in the health sciences. Some health professions programs require 8 credit hours of human anatomy and physiology with laboratory prior to matriculation. Currently most medical and dental schools do not require anatomy and physiology for entry but many students headed for these programs take A&P to prepare for their admissions tests (the MCAT and DAT).

Other career paths of students taking A&P courses include nursing, occupational therapy, physical therapy, physician assistant, radiation technology, laboratory/medical

technology, dental hygiene, pharmacy and related disciplines. These programs in the health professions range from certificate programs to bachelor's degree programs to graduate degree programs, and the students taking A&P vary widely in background and ability. Entry into most of the career programs listed above is contingent upon successful completion of anatomy and physiology with a grade of C or above. In competitive programs, the grade requirements may be much more restrictive. Students majoring in physical education, sports training, or kinesiology also have course requirements for A&P and make up a small component of the classroom population.

The 2-semester/3-quarter undergraduate course usually known as Human Anatomy and Physiology or simply Anatomy and Physiology is a large introductory course that may be offered by a variety of life science departments. Nationwide, roughly two-thirds of these combined A&P courses are taught at community colleges, with the remaining third taught in four-year schools and universities. Combined A&P is one of the larger introductory level courses, with approximately 450,000 students enrolled each year in the US and Canada.

At community colleges, the combined A&P course is often taken in the first year of college, without college-level prerequisites in biology, chemistry, or mathematics. Because students may lack appropriate background, a combined A&P course may cover a diversity of topics, including not only anatomy and physiology, but introductory biochemistry, cytology, histology, molecular biology, genetics, immunology, nutrition, embryology, and pathology. The coverage is so diverse and the principles so relevant to a general understanding of modern biology that a 1-semester version of combined A&P is often used to satisfy the general biology requirements for non-majors students.

At four-year colleges and schools, the combined A&P class is less common, and anatomy and physiology are often taught separately in courses for biology majors. Two-semester A&P courses may be taught at these schools as service courses, distinct from courses for life science majors. The instructors may come from life science departments, or in some cases, the sequence may be offered by another academic division, such as anatomy and physiology departments within an associated medical school. As a result, the diversity of faculty teaching A&P roughly approaches the diversity of topics presented within the course.

The Need for Standardization of Criteria for the Selection and Accreditation of Faculty

It is in the best interests of all parties during an accreditation review to use a standardized set of criteria when evaluating the faculty teaching anatomy and physiology courses. Credentialing faculty to teach human anatomy and physiology differs somewhat from credentialing for teaching in other biology courses due to the close relationship between A&P and the biomedical sciences. A&P faculty may gain expertise through postgraduate

training and hands-on experience in a variety of clinical fields as well as from didactic courses taken as a graduate student.

Furthermore, clinical experiences need not be limited to settings that deal with humans as patients. Because of the evolutionary conservation of structure and function in vertebrate animals and because of the core concepts that apply to all living organisms, faculty who have trained in comparative anatomy or comparative physiology, such as veterinarians, may be as qualified to teach human A&P as someone who studied human medicine. These standards have not been recognized in the past.

Most problems with credentialing faculty to teach A&P come from situations where anatomy and physiology are combined into a 2-semester sequence. This is because graduate training in anatomy and in physiology are usually separate: the graduate degree is in one of the two fields but not both. Opportunities to obtain an M.S. or Ph.D. degree in “human anatomy and physiology” are extremely limited, and many such programs now in existence arose in response to credentialing problems. Faculty with a degree in one field often have gained expertise in the other through work outside of their graduate studies, so it is critical that there be methods for assessing competencies acquired that way.

Another problem that often arises during credentialing is the emphasis on field of the graduate degree and the course prefixes that indicate the department or school sponsoring the course. Many credentialing review committees are reluctant to accept graduate courses that do not have a BIO prefix, despite the fact that graduate course in fields such as biomedical sciences (BMS), neuroscience (NS), zoology (ZOO) and so on may be identical to those taught under a BIO prefix.

Standards for Instructors in Anatomy and Physiology

The minimum criteria for teaching introductory level human anatomy and physiology courses are

(1) a Masters-level or higher degree in a life science, or a professional degree or other advanced clinical degree awarded by a nationally accredited institution. Analysis of an individual’s degree program may be necessary to determine its suitability for meeting this criterion.

- “Life sciences” can be broadly interpreted to include related fields such as biological anthropology, kinesiology, and exercise science.
- Clinical degree programs include, but are not limited to, medicine, nursing, dentistry, optometry, physician assistant, clinical laboratory science, public health, osteopathy, chiropractic, veterinary medicine, and physical therapy.
- Examples of professional degrees in the biomedical sciences include but are not limited to M.S.N., M.D., D.O., D.C., D.P.T, D.D.S., and D.V.M. Equivalent international degrees may be accepted as fulfilling the degree requirements.
- Degrees in science education should not exclude faculty members from being

qualified as long as they have the appropriate credits in science, as indicated by the course list in [Appendix 1](#) and the alternate ways for obtaining training.

(2) 18 credits from relevant courses, research, clinical work or continuing education as described below.

The 18 credits can be accumulated through a combination of

- undergraduate and graduate coursework
- mentored A&P teaching experience as a graduate teaching assistant or as postdoctoral faculty
- postgraduate experience teaching A&P courses
- postgraduate work in human anatomy and/or physiology, including continuing education credits or certificate programs
- research in a field relevant to A&P as evidenced by publication in peer-reviewed journals
- clinical experience in a human or animal biomedical field.

Determining Relevant Coursework

Anatomy and physiology are subsets of biology. Because the core concepts of biology apply broadly to all living organisms, a great diversity of biology courses are directly applicable to human A&P. Instructors must be prepared to integrate introductory level chemistry and biochemistry not only with anatomy and physiology, but with a variety of other relevant topics, including cytology, cell physiology, molecular biology, histology, microbiology, immunology, embryology, and nutrition. Because of the interrelatedness of topics in biology, a course in any one of the topics above will include a significant amount of anatomy and physiology, and therefore is appropriate background for an A&P instructor.

Appropriate graduate course credits may come from a variety of graduate programs as well as from graduate-level professional schools such as medical schools. **Suitability of a graduate class should never be determined simply by the prefix letters of the graduate program.** When necessary, the credit-granting institution should be asked to provide a syllabus or summary of the course in question.

[APPENDIX 1](#) lists typical courses that are relevant to the teaching of anatomy and physiology at the introductory level. This list is intended as a reference and a guide, not as a comprehensive or exclusionary listing of applicable courses, and course titles on a transcript may vary considerably from those listed. The list is meant simply to provide an indication of the diversity of topics directly relevant to human anatomy and physiology.

Credentialing committees seeking additional information about the content relevant to teaching A&P can examine the following documents adopted by the professional societies:

HAPS Course and Curriculum Guidelines

<http://www.hapsweb.org>.

APS Medical Physiology Learning Objectives

<http://www.the-aps.org/mm/Education/Publications/Education-Reports/Higher-Education/MedPhysObj/Feb-2012-version.pdf>

Coursework Equivalents

This document recognizes that there are multiple ways to gain expertise in a topic, including mentored teaching as a graduate student or postdoctoral student, prior teaching experience, continuing education through attendance at meetings or workshops, and hands-on experience through research or clinical work. For some faculty, their more recent activities are a better reflection of their training and competencies than their graduate degree and graduate courses because of the rapid advances in science that take place constantly.

Credits should be calculated as follows:

- for coursework: the credits awarded on the relevant student transcripts or continuing education certificate
- for graduate teaching assistant work or for work as faculty while a graduate student or postdoctoral student: the credit hours awarded on the graduate student transcript or the credit hour value of the course
- for postgraduate teaching: 3 credits for each semester taught
- for continuing education (CE): CE credits or units are usually awarded at a ratio of one CE credit per contact hour. Because a common standard is one graduate credit = 15 contact hours, each 15 CE units would be equivalent to one graduate course credit.
- for research publications: 3 credits for each peer-reviewed journal article
- for clinical work: 3 credits for each year of clinical experience

Faculty being credentialed should document all relevant experience. Feedback from accrediting bodies indicates that the documentation must explain explicitly how the credentials presented qualify the faculty member for teaching the courses to which they are assigned. A sample “crosswalk” document showing how this can be done effectively is included in [Appendix 2](#), and a checklist for faculty to track their qualifications is [Appendix 3](#).

If teaching experience in the field is being used as part of the credentialing process, supporting documentation such as student or peer evaluations of teaching, students’ results on standardized or institutional examinations, and course syllabi should be available for inspection.

Evidence of Teaching Effectiveness

Content expertise should only be one part of the credentialing process. The second component should be demonstration that the instructor is an effective teacher. As with content, documentation of teaching effectiveness can take many forms, such as a teaching portfolio, statement of teaching philosophy, peer and student evaluations, teaching awards and honors, and student performance on pre- and post-tests, standardized examinations or department-wide tests that compare students in comparable courses taught by different instructors.

The Task Force

The task force (Table 1) was composed of representatives from the four societies whose members are most involved with teaching anatomy and/or physiology: HAPS, APS, American Association of Anatomists (AAA), and the American Association of Clinical Anatomists (AACA).

Table 1: Members of the anatomy and physiology credentialing task force

Jennifer Burgoon	Division of Anatomy	Ohio State University
Robert Carroll	Department of Physiology	East Carolina School of Medicine
Jon Jackson	Department of Anatomy & Cell Biology	University of North Dakota School of Medicine
Rebecca Lufler	Department of Anatomy & Cellular Biology	Tufts University School of Medicine
Valerie O'Loughlin	Department of Anatomy & Cell Biology	Indiana University, Bloomington
Rebecca Pratt	Department of Radiology, Anatomy Division	Michigan State University College of Medicine
Dee Silverthorn (Chair)	Integrative Biology	University of Texas at Austin