

# History of the Department of Physiology and Biophysics of the University of Illinois at Chicago

Randal C. Jaffe, Ph.D.

1882 The precursor to the University of Illinois College of Medicine at Chicago, the College of Physicians and Surgeons of Chicago, opened on September 26. The building was located on the corner of Harrison and Honore at 813 W. Harrison St. (the cornerstone of this building is in the courtyard just east of the Faculty-Alumni Center - Picture). This location was chosen because of its proximity to Cook County Hospital. The building was in the Queen Anne style with a footprint of 70x100 feet. It had four floors and a basement and was topped by a 100 foot tower. The basement contained the janitor's apartments and a dining-room with room for 100 students. On the first floor were the college office, students' waiting room, professors' reception room and the dispensary which contained a waiting room and seven clinic rooms. The second floor had a lecture room with capacity for 226 students, 3 professors rooms, a large clinical operating room and 3 rooms for clinical patients. The third floor has the physiological laboratory, student's library, chemical laboratory, professors' preparation rooms and five professor's private rooms. The fourth floor had an amphitheatre with seating for 450 students, dissecting room, room for preparing subjects for dissection, students' and demonstrators' dressing room and room for vivisection subjects.



From the very beginning Physiology was among the subjects taught to the first year medical student (descriptive and practical anatomy, physiology, histology, general chemistry, material medica (eventually to morph into pharmacology), and therapeutics). In the bulletin the course consisted of "lectures, demonstrations, recitations and practical work in the laboratory. Students in the second and third years will have opportunities furnished for pursuing original investigations." The very first instructor was Dr. E.E. Holroyd. The textbooks recommended for the course were Physiology by M. Foster (1880) and Principles of Mental Physiology by WB Carpenter (1875) (you can view the textbooks

1887 Dr. John A. Benson became the physiology professor.

1888 Dr. Benson begins offering a gold medal to the student who had the best examination in physiology.

1892 The medical school expanded with the addition of a 6 story laboratory building of 27x100 feet and a hospital on Congress and Lincoln (renamed Wolcott in 1939 in honor of Dr. Alexander Wolcott, Jr. the first physician in Chicago) of 135x100 feet.

1897 The school property was leased to the University of Illinois and control of the school passed to the University of Illinois. The school name became the Medical Department of the University of Illinois. The initial lease was for four years.

Dr. T.B. Wiggin began teaching the physiology course.

During this period the length of time devoted to Physiology was increasing. The physiology course was listed as being 150 hours in the first year and 60 hours covering the nervous system in the second year.

1899 A new agreement was made on a 25 year lease at the end of which all the schools property would become the property of the University of Illinois.

1900 The name was changed to the College of Medicine of the University of Illinois.

The first year Physiology course was divided into two terms with blood, muscle and nerve, circulation, respiration, and secretion in the first term and digestion and absorption, excretion, nutrition and thermotaxis, special senses and reproduction in the second term. The nervous system was covered in the second year of physiology. Conspicuously absent was the endocrine system. Secretin the first hormone to be described was not identified (1902) and the term hormone not even coined (1905).

The West Division High School building and property were purchased and converted into a medical college building. This was bounded by Ogden Avenue, Lincoln, Congress and Honore Streets. The building was of 5 stories 100x200 feet with a four story laboratory wing of 30x96 feet. The original Medical College Building was converted into the College of Dentistry building.

1901 The Department of Physiology came into existence. Its description in the College of Medicine bulletin from that time was as follows:

“The department of physiology has recently acquired entirely new laboratory equipment comprising all of the apparatus necessary for demonstration and research work. Each student’s outfit includes a kymograph, induction coil, batteries, electrodes, chronograph, moist chamber, etc. The students study the blood thoroughly using the microscope, spectroscope, haemocytometer, haemoglobinmeter and haematocrit, and perform for themselves the fundamental experiments of muscle-nerve physiology, of circulation, and of respiration. The more strictly chemical problems of secretion and excretion are covered in the work of the chemical department. The use of the sphygmographs, radial and transmission, sphygmomanometers, ergograph, galvanic batteries, etc., is introduced in the regular course to give training in experiments on man capable of direct application in clinical medicine.”

1910 The Flexner Report is published. The American Medical Association has a nice article online describing the conditions of medical education in America which led to this study and the impact it had on subsequent medical education (<http://jama.ama-assn.org/content/291/17/2139.full>).

1912 The relationship between the College of Medicine and the state had been strained for a number of years because the legislature continually failed to appropriate money for the support for the College of

Medicine or to purchase the college. The stockholders of the College Corporation terminated the lease with the University and the College of Medicine reverted to a private medical school - the College of Physicians and Surgeons of Chicago. The Alumni Association of the College of Physicians and Surgeons of Chicago sought to secure the stock of the college through donation and purchase.

- 1913 The Alumni Association donated the stock to the University of Illinois and the College of Medicine was again part of the University of Illinois as the University of Illinois College of Medicine.

For the first time admission to the College of Medicine required a year of college work in addition to completion of high school. This and other changes were a direct response to the Flexner report of 1910.

Dr. Dreyer became the first head of the Department of Physiology

- 1914 A requirement for two years of college as a prerequisite for admission to the College of Medicine began.

The Department was renamed the Department of Physiology and Physiological Chemistry. Several optional courses were introduced:

Advanced Laboratory Course. Properly qualified students may take up additional work in the optional course intended primarily as graduate work. It consists of a series of exercises introducing the various graphic methods of physiological demonstration and research, and varies as to the kind and amount in accordance with individual needs

Journal Club and Seminar- Members of the staff and advanced students meet regularly during the year for the purpose of reporting significant articles appearing in the current journals and of studying in detail special topics in physiology.

- 1916 The Graduate School came into existence (its name would be changed to the Graduate College in 1947). It began with the Departments of Anatomy, Physiology and Physiological Chemistry, Pharmacology, and Pathology and Bacteriology. The description of the aims of graduate work sounds much the same as those today:

The principal aim of graduate study is the development of the power of independent work and the promotion of the spirit of research. Each candidate for a degree is expected to have a wide knowledge of his subject and of related fields of work; for the graduate student is not expected to get from lecture and laboratory "courses" all the knowledge and training necessary to meet the requirements for his degree. Each student is expected to do a wide range of private reading and study, and in many cases will find it advisable to take one or more courses of lectures quite outside the field of his chosen subject.

The description of the requirements for a PhD could also have been written today:

The requirements for the degree of Doctor of Philosophy are a thorough mastery of a selected field of study, evidence of the power of independent investigation in this field, a broad knowledge of a wider field of study of which this major subject is a part, a general acquaintance

with related fields of knowledge and a mastery of all branches of study which are necessary to a full knowledge of the main subject.

As today, there was the requirement for a preliminary examination at the end of the second year and a thesis defense. At that time the student had to demonstrate that they could read “French and German and any other language needed for the prosecution of his work.”

Four courses were listed in the Department of Physiology and Physiological Chemistry:

101. Advanced Physiology. An introduction to original work in Experimental Physiology. Individual instruction in fundamental methods. Laboratory course. One or two units.

103. Advanced Biological Chemistry. Biochemical methods of research, biological colloids, enzyme action and metabolism. One or two units.

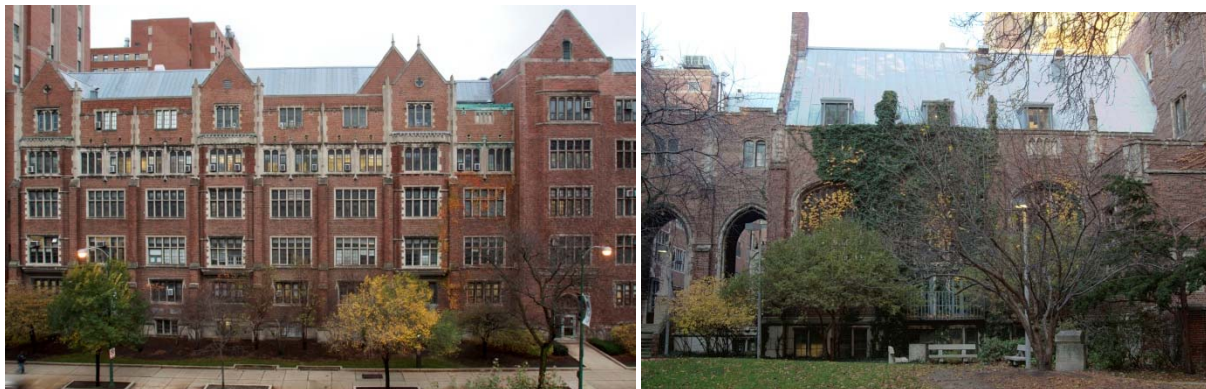
105. Research Work in Physiology. One or two units.

107. Biochemical Research. One or two units.

1919 The Illinois General Assembly appropriated money for a new clinical building. At the same time The State Department of Public Welfare received money for the construction of a group of hospitals in Chicago. The director of the State Department of Public Welfare (Charles Thorne) entered into an agreement with the University of Illinois that the Department of Public Welfare would build and maintain the buildings and the College of Medicine would provide the staff. The land on which the construction was to take place (bounded by Polk, Lincoln (now Wolcott), Taylor, and Wood streets) had been the home of the Chicago Cubs (and the site of their last World Series title in 1908) before their move in 1916 to Weeghman Park (called Cubs Park from 1920-1926 and after that Wrigley Field).

1921 Funds were appropriated by the Illinois General assembly for the construction of a research laboratory and library building which was to be connected to the main hospital building.

1925 The research building opens (the part of the College of Medicine on Polk Street midway between Wood and Wolcott - picture). The original configuration of the five floors had the pharmacology laboratories



and the library (upon completion of the Health Sciences Library on the corner of Polk and Wood in 1973 this was converted to what is presently the Faculty-Alumni center – picture) on the first floor, pathology

and bacteriology on second floor, physiology and physiological chemistry on the third floor, anatomy on the fourth floor and the animal hospital and operating rooms on the fifth floor.

1928 Arthur G. Cole becomes the first student to receive his PhD from the Department of Physiology and Physiological Chemistry. His thesis was titled "The proteins of egg white. The proteins in egg white and their relationship to blood proteins of the domestic fowl as determined by the precipitation reaction." His thesis (as well as all other students from the College of Medicine) can be found on the third floor of the Health Sciences Library.

1929 The Illinois Legislature appropriated money for new medical and dental laboratories. This is now the College of Medicine West (picture).

The stock market crashes (October 29, 1929) precipitating the Depression.



1931 The Department was split into a Department of Physiology, Dr. Maurice B Visscher serving as Head, and a Department of Physiological Chemistry which would evolve into the Department of Biological Chemistry (1944) and more recently, after its merger with the Department of Genetics, form the Department of Biochemistry and Molecular Genetics. With the new Departmental alignment the course offerings for the graduate students were Advanced Physiology, Research in Physiology and Research in Bio-Physics.

The new medical and dental laboratories building (College of Medicine West) which runs along Polk and Wolcott were finished and occupied.

1937 The College of Medicine East running along Polk and Wood Streets was completed (picture).

Dr. George E. Wakerlin becomes Head of the Department.

1946 The Chicago Undergraduate Division of the University of Illinois begins operation at Navy Pier. The students could take their first two undergraduate years at this location.

1956 Physiology for the medical students has evolved to span the 3 quarters of their first year. In the first quarter muscle and nerve, blood, circulation, and respiration were covered. In the second quarter the subjects covered were digestion, excretion, endocrines, nutrition, metabolism and heat regulation. In the final quarter the topics were the central nervous system and senses.

1958 Dr. Arnold V. Wolf becomes the Head of the Department of Physiology.



1961 The various health science colleges are brought together as the University of Illinois at the Medical Center.

1962 The Medical Sciences Addition (picture) (now called the Medical Sciences Building) was completed in two phases (phase 1 1962, phase 2 1966). This greatly expanded the amount of space available to the Department of Physiology. It was also at this time that the course offerings for graduate students expanded beyond a three semester physiology course, seminar in selected fields of physiology, physiology seminar, and research in physiology. The listings in the Graduate College Bulletin for the Department of Physiology were:



301 Biophysics This course presents physical principles, techniques, and instrumentation applicable to biological and medical research, clinical diagnosis, and therapy. Topics are selected from the following branches of physics: mechanics, sound, heat and thermodynamics, electricity, and electronics.

302 Biophysics. Continuation of Physiology 301

303 Physical Instrumentation in Biology, Electronics. This course presents basic theory of electron tubes and electric circuits and applications of electronic equipment in biological research involving measurement of muscle tension, blood flow and pressure temperature, electric potentials, etc.

304 Physical Instrumentation in Biology, Optics. This course presents theories of optical phenomena with application to the various optical instruments used in physiological and biochemical research, including colorimeters, spectrophotometers, fluoro and Raman spectrometers, refractometers, polarimeters, phase contrast microscopes, and others.

324 Human Physiology. Physiology of muscle and nerve, blood, circulation, and respiration

325 Human Physiology. Continuation of 324. Physiology of digestion, liver, metabolism, heat regulation, reproduction, kidney and water balance

326 Human Physiology. Continuation of 325. Physiology of central nervous system and senses

401 Advanced Physiology of the Endocrines

402 Advanced Cardiovascular Physiology

403 The Environment and the Comparative Physiology of Respiration

491 Physiology Seminar

492 Advanced Topics in Physiology

## 493 Research in Physiology

The advanced courses offered by the Department would change over time reflecting the changes in faculty over time.

- 1965 With the completion of what is now referred to as the East Side campus the University of Illinois at Chicago Circle came into being as the second branch of the University of Illinois.
- 1969 The Board of Trustees of the University of Illinois approved plans to restructure the Medical School. Approval was given for a Peoria School of Medicine and a Rockford School of Medicine. A School of Basic Medical Sciences was also going to be established at Urbana-Champaign where the first year would be taken by some students. At Chicago the basic science departments (Departments of Anatomy, Biological Chemistry, Microbiology, Pathology, Pharmacology, and Physiology) were organized into a School of Basic Medical Sciences at the Medical Center where the medical students would take their first year. The Abraham Lincoln School of Medicine was formed and the last three years of medical school were under its umbrella.
- 1971 The teaching to the medical students was reorganized so the material would be presented by organ system. This lasted until 1981 when the course structure was reinstated.
- 1973 Dr. Akira Omachi is appointed acting Head of the Department.
- 1974 Dr. Roderich W. Walter is appointed the Head of the Department.
- 1977 The name of the Department changed to the Department of Physiology and Biophysics.
- 1979 Dr. Lourens Zaneveld appointed Acting Head.
- 1981 Dr. Robert L Perlman appointed Head of the Department.
- 1982 The Medical Center and Circle Campuses were consolidated into the University of Illinois at Chicago. This also ended a separate School of basic Medical Sciences and Abraham Lincoln School of Medicine.
- 1986 Dr. Akira Omachi once again appointed Acting Head
- 1988 Dr. R John Solaro appointed Head of the Department.
- 1990 NIH funds training grant "Cellular Signalling in the Cardiovascular System."  
First annual Awards/Recognition Evening. Initial Mark R. Lambrecht Award for Scholarship and Commitment.
- 1993 First presentation of the Philip L. Hawley Distinguished Faculty Award at the Awards/Recognition Evening.
- 1998 First presentation of the Kate Barany Graduate Student Award at the Awards/Recognition Evening.

2003 Our graduate program changes dramatically with the creation of the Graduate Education in Medical Sciences (GEMS) program. Students for the PhD in the basic sciences (Anatomy and Cell Biology, Biochemistry and Molecular Genetics, Microbiology and Immunology, Pathology, Pharmacology, Physiology and Biophysics) are admitted into the GEMS program rather than into a specific department. They take 3 courses from a set of core courses (physiology, biochemistry, molecular biology, cell biology) in the first semester and 2 courses from the Spring set of core courses (integrative biology, molecular genetics, receptor pharmacology and cell signaling, translational and applied physiology, and structure of biopolymers). In addition in each semester there is a research methods course and a course for their lab rotations. After their first year course work the students choose their advisor and as a result the specific department their degree will come from.

2005 The College of Medicine Research Building (picture) on the corner of Wolcott and Taylor is completed. The research labs and offices are now in the COMRB , the Medical Research Building the College of Medicine West along Wolcott.

2015 Dr. R. John Solaro steps down as Head of the Department after 27 years of service.

Dr. E. Douglas Lewandowski appointed interim head.

2016 Dr. Jan K. Kitajewski joins our Department as Professor and Head

**Resources:**

Circulars of Information, Catalogues, and Bulletin of College of Medicine of the University of Illinois at Chicago (or earlier iterations of the name)

Minutes of the Board of Trustees meetings

History of the University of Illinois at Chicago (1921)

E.M. Tanner. The Historic Medical Campus of the University of Illinois at Chicago(2012)

**Acknowledgement:**

Dr. Robert Loizzi was extremely helpful in suggesting sources to consult and material to include.

