

Teaching the History of Pharmacy Today

Eric J. Mack

It should be clearly stated that I am not an historian. Pharmacy has been an integral part of my whole life. I was raised in a family pharmacy in Portland, Maine. While growing up I became interested in the history of pharmacy; this interest carries through to this day. I was raised on a “diet” of old prescription recipe books, Parke-Davis paintings of pharmacy history, pharmacist guides, USPs, NFs, old prescription bottles, and weights. At the age of four, I decided to become a pharmacist some day. My fourth-grade science fair project involved pharmacy and I ground and mixed powders, filled capsules, and mixed colored solutions for the onlookers.

I attended the University of Rhode Island as an undergraduate. While I did not take the formal course in the history of pharmacy offered by the distinguished George Edwin Osborne III, he laid the groundwork for my efforts in promoting the history of pharmacy to students. Dr. Osborne was a proponent of providing historical background to his lectures in calculations, dosage forms, and physical pharmacy. I attended graduate school at the University of Utah where one of my mentors in pharmaceuticals was Robert V. Petersen. One term I was his teaching assistant for the elective course in history of pharmacy that he taught annually.

I have a second admission to make. I have never taught a formal course in the history of pharmacy. I became an AIHP member in 1985. My faculty workload from 1985 to 1992 never permitted teaching an elective. I was fortunate that Northeastern University has an honors pro-

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gram. I have responsibility for a course in the honors program. It is an adjunct to the pharmaceutical calculations course that I taught for students in their sophomore year (second preprofessional year). I decided to follow up on my interests and teach the adjunct as history of pharmacy. My first thought was to call Dr. Gregory Higby at AIHP and ask for help. Was there a tried and true, patented class outline with notes that I could adapt to my work, I asked, looking for the easy way out? Alas, Dr. Higby informed me, there was no such thing, but he and the Institute would help any way they could.

Attached as an appendix is the handout I created for the meeting. It details the efforts expended in the honors adjunct for the last four fall terms. It also includes a timeline I created to help put pharmacy history in perspective for the students. I fashioned the timeline using the history of pharmacy text and information about pharmacy in Boston and at Northeastern University gleaned from local sources. As an honors course adjunct, students were required to enhance their written and spoken communications skills. The first year I chose to use AIHP resources. I took all of the available books and pamphlets given to members and assigned one to each group of three students. On a weekly basis I lectured on a topic from the text. In addition, after considerable work outside of class, each group did a formal group presentation related to the AIHP book or pamphlet assigned to their group. At the end of the term, individual papers were collected on their specific topic. These were shared with my colleague, Dr. Michael Montagne, who reviewed them with an associate, critiqued them and ranked them. The "winning paper" was used as the basis that year for the winner of the AIHP Certificate for history of pharmacy awarded annually at Northeastern University (it usually goes to the Rho Chi historian).

The following year I chose to be different and used the text more. I took the chapters on pharmacy in America and assigned them to groups of two students (fewer honors students that year). The admirable goal was to have each student group provide information to fill in the gap between the text's 1976 publication date and the present. Depending on the effort expended by the students the results were mixed and rather lukewarm. Prior to each group presentation, I lectured about the historical perspective for the topic area to be presented. Following the group presentation I directed a discussion of the subject presented, trying to play off of the presentation and any relevant issues.

The third year I let the students take a more active role in choosing their subject, forming their groups and creating their presentations. Group dynamics can be very interesting, but the resulting presentations

were lukewarm again. Alas, I decided, college sophomores with little to no practical pharmacy experience lack true perspective of their chosen profession. Discussions with Dr. Higby led to an experiment in ethics in pharmacy guided by the AIHP publication, *Ethical Responsibility in Pharmacy Practice*. I assigned the text to the honors students and asked them to choose one of the many case studies in ethics provided in the text. This gave the students great latitude in the type of case chosen. Students could work alone or in groups. I asked the students to review a case and provide a brief summary of the issues, their chosen resolution and the groundwork for the dissenting opinion. These case reports were collected, blinded, and sent to each individual for critique. Individual students provided critiques of the presented opinions. The critiques were collected, collated, and sent back to the student groups for review. Each group, mindful of the critiques, rewrote and submitted a final case report for my review. I was pleased with the structure and student enthusiasm. Again, the naiveté displayed by college sophomores can be humorous at times. That, however, at present, is the level at which I have honors students.

For a few years I gave a lecture on the history of pharmacy (utilizing the timeline) in the freshmen pharmacy orientation course. It was more difficult to interest 100 students in a two-hour lecture than to work annually with 10-18 sophomores on group projects and presentations. The adjunct is only one hour class time per week; it did not permit such things as field trips to the Ether Dome at Massachusetts General Hospital. The class has provided some interesting moments and has fulfilled a long-standing interest.

APPENDIX A

FROM THE COLLEGES**

NORTHEASTERN UNIVERSITY

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SPRING at Northeastern University means change with the end of the Winter Term and the beginning of the Spring Term. It also means the American Pharmaceutical Association (APhA) Annual Meeting, March 7-11, is at hand. BARD members Robert Blaser, Todd Brown, Mark Yorra and myself will be shepherding a number of pharmacy students to the meeting. This group includes Sophie Lanjuin, a fifth-year (first-year Pharm.D.) student, who won this winter's patient counseling competition sponsored by the program's APhA-ASP and Rho Chi chapters. If you are a BARD member, especially a Northeastern University alumnus, attending the meeting, be sure to stop by the NU table at the exposition on Sunday and say hello. The students will have NU Pharmacy t-shirts and hats for sale. Todd Brown will have a poster presentation. Posters usually hang in the Exposition Hall for 24 hours. I am an invited speaker. I am part of a panel discussion cosponsored by the American Institute of the History of Pharmacy (AIHP) regarding academic styles and approaches to teaching the history of pharmacy. The presentation is first thing Tuesday morning, in direct conflict with the different colleges' breakfasts. If you are interested, come on by. As an invited speaker, I will even have a brief biography posted in the program.

If you are interested in the history of pharmacy or pharmacy sociology or pharmacy ethics, you might be interested in AIHP. The association has a quarterly journal with articles of both academic and personal interest as well as a regular newsletter with a collectors corner for individuals to present pharmacy-related items for sale or interest to buy items. For more information, contact me or contact AIHP at 608-262-5378.

The Pharmacy Program was recently reaccredited by the American Council on Pharmaceutical Education (ACPE, the people who also accredit continuing education programs). Reaccreditation for the Pharmacy Program has come at the time at which we are actively working towards the implementation of the entry-level Doctor of Pharmacy degree. The Fall 1997 entering freshman class (graduating Class of 2003) will be the first entry-level six-year program. Course work for this new curriculum includes integration of clinical pharma-

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cology and therapeutics earlier in the student's academic career and expanded clinical experiences. Northeastern University currently has a track-in Pharm.D. degree; students complete four years of the current B.S. program and apply before March 1 of the fourth year for entry into two years of expanded course work leading to the Pharm.D. degree. This June will mark graduation for the second track-in Pharm.D. class; junior students are currently vying for spots in the new September class.

Work continues on our plans for implementing the Nontraditional Pharm.D. degree and Disease State Management Workshops. We hope that graduates of these programs will serve as clinical preceptors for all of our Pharm.D. programs in the future. In the future, we expect to provide clinical experiences in all aspects of pharmacy. As most of you know, it is my fervent wish to create superior clinical experiences within community pharmacy practice. Feel free to contact me if you would like to discuss these issues, find out more information or become a preceptor.

APPENDIX B

NORTHEASTERN UNIVERSITY Bouvé College of Pharmacy & Health Sciences

PCT 1777 Sophomore Pharmaceutics Honors (in conjunction with PCT 1240)

History of Pharmacy

Dr. Eric J. Mack, instructor

Course Description

The honors adjunct was taught fall quarter 1993 by Dr. Eric J. Mack of the Department of Pharmaceutical Sciences. The history of pharmacy is an area that receives little or no attention in the pharmacy curriculum, but is thought to be of great importance in recognizing and understanding the professionalism required of a pharmacist. To meet the perceived objectives and skills required by an honors course, the students were provided lectures on background and skill development and prepared topical group presentations and individual term papers (see enclosed course outline). The initial lecture was an overview of the history of pharmacy with emphasis on pharmacy in this hemisphere. For the second lecture, the students were given an interactive lecture by Marilyn Steinberg of the library staff. They were shown how to research appropriate reference material using the university's computer system. A lecture on writing techniques and skills was given by a member of the English Depart-

ment/Writing Center. A lecture on presentation skills and techniques was provided by Dr. Mack.

At the beginning of the term, the students selected groups to work with and randomly chose project (presentation and term papers) areas. Each project group was presented with reference materials as available (a general text and reference works were obtained from the American Institute of the History of Pharmacy, Madison, Wisconsin, and distributed to the appropriate group). Dr. Mack worked with each group on a weekly (and on an as needed) basis to shape presentations, maintain project focus, and develop additional reference materials for term papers.

For the final five weeks of the quarter, each class began with a 30-minute presentation by a given group in their topic area (approximately 10 minutes presentation time for each student). This was followed by a review of the topic area by Dr. Mack for its relevance and important concepts as well as providing additional information not given during the presentation. Dr. Mack also moderated a class discussion of the presentation topic and directed questions from the class to the appropriate presenter. The balance of the class time was spent working with groups yet to give presentations or in discussion of individual term papers.

Term papers were collected December 6. These have been reviewed by the instructor. Grading on a satisfactory/unsatisfactory basis (chosen by the students) was achieved with the successful completion of a group presentation and an individual term paper. The term papers will be shared with local pharmacy historians. A single paper will be chosen as best paper by this "panel." The "winner" will receive a certificate at the Pharmacy Program's Spring Awards Luncheon in April.

NORTHEASTERN UNIVERSITY
Bouvé College of Pharmacy & Health Sciences

PCT 1777 Sophomore Pharmaceutics; Honors
(in conjunction with PCT 1240)

History of Pharmacy

Course Outline

Class meets Mondays 9:15-10:20 AM in Room 411 Ell Building

October 4	Introduction - History of Pharmacy Overview
October 11	Columbus Day Holiday
October 18	Library research
October 25	How to write a paper
November 1	How to make a presentation
November 8	GROUP I PRESENTATION Hicks-Duggan, Gilson, Qaqish Folklore and Folk Medicines
November 15	GROUP II PRESENTATION Campochiaro, Graime, Smotrycz Pharmacy - Colonial and Revolutionary Periods
November 22	GROUP III PRESENTATION Ashcraft, Bongiorno, Dodds History of Pharmaceutical Manufacturers
November 29	GROUP IV PRESENTATION Ahmed, Casella, Duncan History of Antibiotics
December 6	Profession of pharmacy (Chapter 16) GROUP V PRESENTATION O'Connell, Psiakis History of Substance Abuse Papers (5-10 pages) due by 1:30 PM

APPENDIX C

NORTHEASTERN UNIVERSITY
Bouvé College of Pharmacy & Health Sciences

Fall 1994

PCT 1777 Sophomore Pharmaceutics Honors
(in conjunction with PCT 1240)

History of Pharmacy

Dr. Eric J. Mack, instructor

Course Description

The honors adjunct was taught fall quarter 1994 by Dr. Eric J. Mack of the Department of Pharmaceutical Sciences. To meet the perceived objectives and skills required by an honors course, the students were provided lectures on background and skill development and prepared topical group presentations and individual term papers. The initial lecture was an overview of the history of pharmacy with emphasis on pharmacy in this hemisphere. For the second lecture, the students were given an interactive lecture by Marilyn Steinberg of the library staff. They were shown how to research appropriate reference material using the university's computer resources. The first part of the final background/skills lecture was provided by a member of the University's Writing Center regarding writing techniques, skills, and appropriate referencing for research papers. The balance of the lecture was provided by Dr. Mack on presentation skills and techniques.

At the beginning of the term the students were grouped into pairs and randomly chose project (presentation and term papers) areas and presentation dates. A general text was obtained from the American Institute of the History of Pharmacy, Madison, Wisconsin, and distributed to the students. Dr. Mack worked with each group on a weekly (and on an as needed) basis to shape presentations, maintain project focus and develop additional reference materials for term papers.

For the final six weeks of the course, each class began with a 20-minute presentation by a given group in their topic area (approximately 10 minutes presentation time for each student). This was followed by a review of the topic area by Dr. Mack for its relevance and important concepts as well as providing additional information not given during the presentation. Dr. Mack also moderated a class discussion of the presentation topic and related areas in pharmacy.

Term papers were collected November 30. These have been reviewed by the instructor. Grading on a satisfactory/unsatisfactory basis (chosen by the students) was achieved with the successful completion of a group presentation and an individual term paper. The term papers were shared with a local pharmacy historian.

APPENDIX D

NORTHEASTERN UNIVERSITY
Bouvé College of Pharmacy & Health Sciences

Fall 1995

PCT 1777 Sophomore Pharmaceutics Honors
(in conjunction with PCT 1240)

History of Pharmacy

Dr. Eric J. Mack, instructor

Course Description

The honors adjunct for fall quarter 1995 was taught by Dr. Eric J. Mack of the Department of Pharmaceutical Sciences. The history of pharmacy is an area that receives little or no attention in the pharmacy curriculum, but is thought to be of great importance in recognizing and understanding the professionalism required of a pharmacist. To meet the perceived objectives and skills required by an honors course, the student was involved in classroom discussions on background and skill development moderated by the instructor and prepared topical group presentations and individual term papers. At the time of registration for the course, students were provided with a preliminary copy of this course description. Students without computer searching/literacy skills were shown how to research appropriate material using the University's computer system, World Wide Web, and MedLine. Writing techniques/skills and presentation skills/techniques were discussed by Dr. Mack.

At the beginning of the term the students divided themselves into four groups (emphasis on team work) based on their choice of topic from a chapter of the text to provide a bridge between 1976 (book date of publication) and today (for both presentation and term papers). Other reference materials from the American Institute of the History of Pharmacy (Madison, Wisconsin) and additional resources as appropriate were made available by the instructor. Dr. Mack worked with each group on a weekly (and on an as needed) basis to shape presentations, maintain project focus, and develop additional reference materials

for term papers. Short written assignments each week assisted in this objective.

During the last class session (expanded to two hours), the student groups gave their presentations (approximately 5-8 minutes presentation time for each student). This was followed by a discussion of the topic area moderated by Dr. Mack for its relevance and important concepts.

Term papers of 8-10 pages in length were collected December 7. Grading on a satisfactory/unsatisfactory basis was chosen by the students. The term papers were reviewed by the instructor and will be returned to the students with comments.

REQUIRED TEXT:

Glenn Sonnedecker, Kremers and Urdang's History of Pharmacy, Fourth Edition, 1976.

OVERALL IMPRESSIONS:

This is the third time I have taught this adjunct. The past quarter I gave the students a little more independence in shaping the group presentations and emphasized group dynamics/initiative. The class was split into students who were enthusiastic/self-motivated and those who were shy and wanted to be told everything to do. Having these two types of students work together made the overall group stronger.

NORTHEASTERN UNIVERSITY Bouvé College of Pharmacy & Health Sciences

History of Pharmacy Outline

Dr. Eric J. Mack

- 1492 Columbus' voyage to the New World includes a surgeon.
- 1631 Van den Boogaert appointed barber-surgeon to New Amsterdam.
- 1646 George Starkey recent Harvard College graduate makes remedies based on oils of antimony (Sb), mercury (Hg), sulfur (S). Basis for most medicinals in Colonies/US until Civil War.
William Davis, physician, opens "apothecary" shop in Boston.
- 1663 Van Imbroch physician/apothecary opens shop in Kingston, NY.
- 1736 Virginia law recognizes the apothecary and the dispensing function.
- 1754 Jonathan Roberts in Philadelphia becomes the first chief hospital apothecary.

- 1755 John Morgan in Philadelphia becomes second chief hospital apothecary, quits after two years to attend medical.
- 1765 Morgan teaches lectures in pharmacy and pharmaceutical chemistry in Philadelphia, starts a school.
- 1775 Continental Congress establishes Army Hospital; staff includes 1 apothecary.
- 1777 Dr. John Morgan, director of Army hospital, appoints Andrew Craigie of Boston as Apothecary General.
- 1778 Dr. William Brown, borrowing from a Scottish book, writes the Lititz Pharmacopoeia, the first military drug formulary.
- 1784 Marshall family begins the manufacture of medicines for wholesale to apothecary shops in Philadelphia.
- 1808 Louisiana makes diploma and examination prerequisites for apothecary practice.
- 1818 South Carolina licenses apothecaries.
- 1820 US Pharmacopoeia published (official listing of drugs and drug standards; now in its 23rd revision/24th edition).
- 1821 Philadelphia College of Apothecaries organized to provide full-time instruction (known today as Philadelphia College of Pharmacy and Science).
- 1823 An association of pharmacists in Boston form Massachusetts College of Pharmacy for the purpose of giving lectures to pharmacists (incorporated in 1867 to provide full-time instruction; known today as Massachusetts College of Pharmacy and Allied Health Sciences).
- 1826 Pharmacy colleges award graduates the degree Graduate in Pharmacy (Ph.G.).
- 1841 George Smith (Philadelphia) starts a pharmaceutical manufacturing company (known today as SmithKline Beecham).
- 1852 American Pharmaceutical Association (APhA) founded.
- 1860 Sharpe and Dohme manufacturing company founded (see 1918; known today as Merck Sharpe & Dohme).
- 1867 Maine Pharmaceutical Association founded as the first state association (known today as Maine Pharmacy Association).
- 1868 University of Michigan starts 2 year program for pharmacists.
- 1870 Conference of Teaching Colleges of Pharmacy founded (succeeded by the American Association of Colleges of Pharmacy or AACP).

- 1876 Colonel Eli Lilly starts manufacturing company in Indianapolis.
- 1877 US Dispensatory published (formulas and instructions).
- 1883 National Retail Druggists Association founded as business society (known today as National Association of Retail Druggists or NARD).
- 1885 Joseph P. Remington publishes Practice of Pharmacy (known today as Remington's Pharmaceutical Sciences; now in its 18th edition)
Massachusetts enacts its first regulations for pharmacists and pharmacy.
- 1888 APhA publishes National Formulary (list of drugs and formulas; now in its 18th edition).
- 1889 Merck Index (of drugs) published (now in its 11th edition).
- 1892 University of Wisconsin establishes 4 year program for pharmacists.
- 1898 Department of Law of the Evening Institute of Boston YMCA (see 1916, 1922; known today as Northeastern University).
- 1901 Charles Walgreen opens the first store in his chain of drug stores.
- 1902 University of Wisconsin awards the first Ph.D. in Pharmacy degree to prepare future faculty and scientists.
- 1904 National Association of Boards of Pharmacy (NABP) formed.
- 1905 New York Becomes first state to require college graduation for licensure.
- 1906 Federal Food and Drug Act adopted in response to bad meat and adulterated drugs.
- 1907 AACP adopts 2 year minimum college course for Ph.G. degree.
Louis K. Liggett (Liggett-Rexall chain drug stores) founds United Drug Company (located at what is now the corner of Forsythe and Greenleaf on Northeastern University campus encompassing what are now Holmes, Lake, Meserve, Nightingale Halls; Ryder Hall is the former Research & Development building of the company).
- 1914 Harrison Narcotic Act adopted, restriction of opium and coca importation.
- 1916 Department of Law of the Evening Institute of the Boston YMCA becomes Northeastern College of the YMCA (see 1898, 1922; known today as Northeastern University).
- 1918 With World War I, German companies lose/sell US interest, patents seized. Sterling buys rights to Bayer aspirin; Schering goes independent; Sharpe and Dohme buy Merck.

- 1922 Northeastern College of the YMCAs becomes Northeastern University (see 1898, 1916).
- 1925 AACP requires 3 year college course for Pharmaceutical Chemist degree (Ph.C.)
- 1927 Meriano School of Pharmacy formed in Boston (see 1940, 1949, 1962; known today as Northeastern University Bouvé College of Pharmacy and Health Sciences).
- 1930 Bureau of Narcotics formed.
- 1932 AACP requires 4 year college course for B.S. in Pharmacy degree.
- 1938 Food, Drug and Cosmetic Act adopted in part because to 73 deaths in 1937 from a toxic elixir of sulfanilamide, requires drugs and cosmetics to be safe.
- 1940 Meriano School of Pharmacy becomes Boston School of Pharmacy (see 1927, 1949, 1962).
- 1942 American Society of Hospital Pharmacists (ASHP) founded.
- 1946 Mugar Hall on Northeastern University campus dedicated (used by Chemistry).
- 1948 Massachusetts becomes one of the last states to require high school diploma and college degree for pharmacist licensure.
- 1949 Boston School of Pharmacy becomes New England School of Pharmacy (see 1927, 1940, 1962).
- 1950 AACP debates requiring 6 year minimum vs. current 4 year course; University of Southern California breaks precedent and adopts 6 year Pharm.D. degree program.
- 1958 Senator John Fitzgerald Kennedy gives graduation address at New England College of Pharmacy.
- 1960 AACP requires 5 year course for B.S. in Pharmacy degree.
First satellite pharmacy concept introduced at Long Beach (CA) Memorial Hospital by Don Carter (administrator).
- 1961 Medication error study completed by Barker and McConnell.
- 1962 Northeastern University absorbs New England College of Pharmacy (see 1927, 1940, 1949).
- 1963 Northeastern University rededicates Mugar Hall as Mugar Life Sciences Building housing the College of Pharmacy with the addition of the Peabody Health Professions Center.

- 1964 University of Kentucky Medical Center introduces unit dose concept and starts first Drug Information Center
- 1966 University of California, San Francisco, starts Pharmacy Services Project.
- 1968 Bureau of Narcotics becomes Bureau of Narcotics and Dangerous Drugs
Hospital-wide decentralized pharmacy services initiated at Long Beach (CA) Memorial Hospital.
- 1970 Comprehensive Drug Abuse Prevention and Control Act Passed by Congress; known as the Declaring War on Drugs Bill.
National licensure examination adopted by NABP.
- 1973 Bureau of Narcotics and Dangerous Drugs becomes the Drug Enforcement Administration.
- 1974 National Study Commission on Pharmacy (Millis Commission).
- 1976 Medical Device Amendment passed by Congress; first regulation of medical devices.
- 1983 Orphan Drug Act passed by Congress; support for drugs to treat rare disorders.
- 1984 Drug Price Competition and Patent Term Restoration Act passed by Congress; provides for generic substitution with patent enhancement for innovator drug.
- 1986 Drug Export Amendments passed by Congress to respond to overseas concerns.
- 1988 Pharmaceutical Marketing Act passed by Congress; limits physician drug samples.
- 1989 AACP adopts 6 year minimum course in pharmacy for Doctor of Pharmacy (Pharm.D.) sole practitioner degree, will be phased in by colleges over extended period of time.
- 1990 OBRA '90 passed by Congress; provides for mandatory patient counseling by pharmacists; moratorium on Medicaid fee change.
- 1992 Commission to Implement Change in Pharmacy Education formed by AACP.
Generic Drug Enforcement Act passed by Congress in response to generic drug scandal at FDA.
Prescription Drug User Fee Act passed by Congress; designed to increase new drug approvals.

- 1993 Northeastern University approved Pharm.D. degree tracking program as first step toward Doctor of Pharmacy sole practitioner degree program.
- President Bill Clinton gives graduation address at Northeastern University.
- 1994 Northeastern University Pharmacy Program considers developing nontraditional Pharm.D. program for practicing pharmacists.
- 1995 Death caused by dosage calculation errors at Dana-Farber Clinic in Boston leads to major review by hospitals of procedures used to certify accurate dosing.
- Ken Barker at Auburn University completes study on pharmacist dosing errors; results broadcast on ABC's Primetime Live.
- Harvard Medical School completes study on dosing errors in the hospital; results broadcast on ABC's Night Line.

APPENDIX E

PCT 1777 Pharmaceutical Calculations Adjunct Fall 1996 Sophomore Pharmacy Honors Students

Ethics in Pharmacy

Dr. Eric J. Mack, Instructor
110 Mugar-373-3207

The sophomore honors adjunct for fall quarter 1996 was taught by Dr. Eric J. Mack of the Department of Pharmaceutical Sciences. I consider discussions and role playing in ethics in pharmacy to be of great importance in recognizing and understanding the professionalism required of a pharmacist.

To meet the perceived objectives and skills required by an honors course, the student was involved in a classroom discussion session on background and skill development moderated by the instructor and prepared topical group presentations. At the time of registration for the course, students were provided with a preliminary copy of this course description. Students without computer searching/literacy skills were shown how to research appropriate reference material using the University's computer system, World Wide Web, and MedLine. Writing techniques skills and presentation skills/techniques were discussed by Dr. Mack.

At the beginning of the term the students divided themselves into six groups (emphasis on team work) based on their choice of a case study from a chapter of the text. The text provided a number of case studies regarding potential ethical situations that a pharmacist or pharmacy student might encounter on the job. Dr. Mack worked with each group on an as needed basis to shape case study reports.

Students were encouraged to use LYNX for correspondence and report submission with the instructor. Student groups were required to submit a case report providing a summary of the case and pro and con opinions of what the individual in the case study should do. The instructor then passed out to the class all of the case reports from the various groups with all names removed to remove potential bias. All students as individuals then were asked to review each case report and submit comments on all of the reports submitted. Those comments were then edited and case-specific comments returned to each group. Lastly, the groups submitted a final case report incorporating the comments received.

REQUIRED TEXT:

Ethical Responsibility in Pharmacy Practice, R.A. Buerki and L.D. Vottero, American Institute of the History of Pharmacy, 1994.

OVERALL IMPRESSIONS:

This is the fourth time I have taught this adjunct. This past quarter I changed the topic from history of pharmacy to ethics in pharmacy, which I thought to be of importance to the students' professional development. The topic worked very well and was considered appropriate and timely. I originally had the intention of conducting this class using internet conferencing software available through the Multimedia Studio. The students were resistant to the use of the new technology (most were not web proficient, some thought it would be embarrassing to be criticized in a format where their names would appear). I agreed to conduct information transfer by internet. I will strive next time to overcome these student fears and implement the newer technologies.