

Biomedical Sciences Department

BMS 6601: General Pathology & Immunology

Syllabus: Fall 2008



Rudolf Virchow (1821 - 1902)

“Epidemics resemble great warning signs on which the true statesman is able to read that the evolution of his nation has been disturbed to a point which even a careless policy is no longer allowed to overlook.”



Florida State University
College of Medicine

2008

Rudolf Ludwig Karl Virchow (1821-1902) was born in the small Pomeranian city of Schivelbein, Germany. His early life was in a modest, rural background which he never completely forgot. As a young man he set a gigantic goal for himself: “An all-around knowledge of nature, from the deity down to the stone.”

He was educated at the Friedrich-Wilhelms Institut in Berlin which provided medical education for gifted boys in return for service in the Army.

Virchow’s early interest and direction was in epidemiology and the history of disease. As a young man, he was an experimentalist (embolism) and biochemist (amyloid, haematoidin, myelin), but his interest turned and developed in microscopic pathology. He became a great oncologist, and his pathological studies made him an important biologist.

- Virchow laid the foundation for modern pathology. In 1858 at the age of twenty-six he published “Die Cellularpathologie in ihrer Begründung auf physiologische und pathologische Gewebelehre.” The results of his investigations on thrombosis and embolism and the essence of Virchow’s doctrine: “with his immortal aphorism ‘omnis cellula e cellula’ (all cells come from other cells) were published in two articles that revolutionized thinking in the medical field. He established the “cellular theory” as the origin of disease and thought disease was produced by disturbances in the structure and function of cells. He was so thorough in presenting proofs the medical world very soon accepted his theory. He described many pathological processes (discovered leukemias) and his conclusions from his studies on thrombosis, embolism and phlebitis are still valid. Medicine in Germany turned from “romantic” to modern as observation of clinical findings became the standard. His important discoveries in parasitology and his social approach in medicine and epidemiology set a new standard as a pioneer in modern public health.

Virchow’s notable reputation developed from his “civic courage.” He fought against militarism, Anti-Socialist Laws, and Anti-Semitism. At his death Germany complained that she lost four great men in one: her leading pathologist, her leading anthropologist, her leading sanitarian, and her leading liberal.¹

¹Sources: 1) Rudolf Virchow Doctor Statesman Anthropologist by Erwin H. Ackerknecht, The University of Wisconsin Press, Madison, 1953; 2) Selected Readings in Pathology From Hippocrates to Virchow, edited by Esmond R. Long, Charles C. Thomas, Springfield, Illinois/Baltimore, Maryland, 1929.

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BMS 6601: General Pathology & Immunology
 Fall Term 2007
 Reading Assignments

| Topic | <i>Robbins, (7th ed.)</i> Required Reading |
|--|--|
| Pathology Course Schedule | |
| Introduction to the course | pp (3-44) |
| Cell Injury | pp (4-44) |
| Inflammation | pp (47-116) |
| Vascular Diseases, Hemodynamic, Thrombosis, Atherosclerosis, Diabetes Mellitus | pp (119-143);(512-525); |
| Neoplasia/Oncology Handouts | pp (269-339) |
| Genetic Counseling | pp (145-187) |
| Placental Diseases | pp (1104-1114) |
| Pediatric Diseases | pp (487-506) |
| Perinatal Diseases | Pp (469-487) |
| Occupational & Environmental Diseases | pp (415-442) |
| Trauma | Pp (443-406) |
| Forensic Pathology | See Trauma; TBA |
| Nutrition | pp (446-466) |
| Aging | pp (42-44) (558-559) |
| Immunopathology | See Immunology Reading |

Immunology Module

| Session | Topic | Abbas & Lichtman Chapter (Pages) |
|----------------|-----------------------------------|---|
| 1 | Introduction to the Immune System | 1 (1-22) |
| 2 | Innate Immunity | 2 (23-65) |
| 3 | Cell mediated immunity I | 3, 4, (45-87) and 5 (89-111) |
| 4 | Cell mediated immunity II | 6 (113-129) |
| 5 | Humoral immunity I | 3, 4, (45-87) and 7 (131-151) |
| 6 | Humoral immunity II | 8 (153-171) |
| 7 | Tumor immunology | 10 (189-204) |
| 8 | Primary Immunodeficiencies I | 12 (223-237) |
| 9 | Primary Immunodeficiencies II | 12 (223-237) |
| 10 | Tissue transplantation | 10 (189-204) |
| 11 | Hypersensitivity | 11 (205-221) |
| 12 | Immunology PBL | |
| 13 | AIDS PBL | 12, Robbins 245-258 |
| 14 | Autoimmunity | 9 (173-187) |
| 15 | Immunopathology | Robbins 194-245, 258-264 |

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Syllabus - Electronic

The “PowerPoint Lectures” section has an electronic version of the PowerPoint lectures for the course. These are designed to supplement and organize the material in the textbook, but not be a complete substitute for it. **Reading the required texts is required.** The posted material may represent subsets of the slides for a lecture may be posted prior to a lecture. Copyright and other restrictions may prevent some images and other materials from being distributed.

Course Objectives

The general pathology course in the Fall semester at FSUCOM covers the basic pathophysiology of mechanisms of disease in medicine. The knowledge gained from study of these basic mechanisms will be applied to systemic pathology in the Spring semester and to clerkships in the 3rd and 4th years. However, material from the systemic chapters will be used to show the general pathologic/pathophysiology principles. This pathology course will incorporate gross pathologic, microscopic, laboratory, radiologic, and other material to assist you in understanding the disease processes and prepare you for licensing examinations. The knowledge gained from a study of pathology will integrate with other courses to provide you with a foundation for future patient care.

Lectures / Discussions / Tutorials

Check locations for course activities in your FSUCOM master OUTLOOK class calendar. Note that due to room scheduling conflicts and other exigencies, the schedule is subject to change and the student is advised to check the electronic OUTLOOK version of the schedule frequently. Changes in the schedule will also be e-mailed to the class. The lectures are designed to cover the course content in an organized fashion, illustrating the concepts and allowing time for you to ask questions.

Laboratories / Small Groups/Problem-Based Learning (PBL) Exercises

Check the schedule for times and locations. You will be assigned to one of the learning community team rooms. Assignments for small group sessions will be made largely on the basis of College of Medicine policies and procedures, the number of groups, and room availability.

Required Textbooks

PATHOLOGIC BASIS OF DISEASE, 7th edition, by Robbins.
BASIC IMMUNOLOGY, 3rd Edition, by Abbas and Lichtman.

PLEASE NOTE THAT STUDENTS ARE EXPECTED TO READ THE TEXTBOOKS. POWERPOINT SLIDES IN THE SYLLABUS WILL NOT SUBSTITUTE FOR THE REQUIRED READINGS.

Computer Resources

WebPath, the Internet Laboratory for Pathology Education (<http://www.med.fsu.edu/webpath/webpath.htm>) will be utilized in small group, laboratory, and PBL activities. However, WebPath is highly recommended for supplementation of the materials in the textbook and lecture materials.

Contact Persons

Jose Diaz, M.D – jose.diaz@med.fsu.edu (Course Director)

Sebastian R. Alston, M.D. – sebastian.alston@med.fsu.edu

Office hours:

Diaz - 8 am to 6 pm (5 to 6 pm preferred) by appointment. Please contact by e-mail.

Alston – 12:00 – 1:00 pm MF and other times by appointment. Please contact by email.

Small group, laboratory and PBL facilitators are drawn from the FSUCOM faculty and graduate students.

Examinations/Grading

The material for examinations and quizzes will come from lectures, laboratory, PBL and small group sessions, and the textbook.

The format for examinations will be as follows:

- Written examination items: multiple choice questions (single best answer and extended matching).
- Practical examination items: multiple choice (single best answer or extended matching) questions based upon illustrations of gross and microscopic lesions, radiologic images, and charts, graphs, and drawings, from material covered in laboratories, small groups, PBLs, textbooks, and lectures.

- Essay items: a written response (250 words or less, including articles a, an, the) to a question about a particular subject covered in the course. The essay requires that you organize your thoughts and gives you an opportunity to express what you know.

There will be three integrated 4-hour block examinations in the Fall semester. These examinations will cover material in all the courses for the four weeks prior to each examination. The pathology component of each examination may include the following components

multiple choice written questions
questions with illustrations (multiple choice)
essay question (one page)

There will be 12 small group/laboratory/PBL sessions for Pathology 6601 in the Fall semester. There will be a 6 point quiz given at the beginning of each of these sessions.

Thus, the final grade in Pathology 6601 will be determined as follows:

75% Exams (3 block exams)
25% Small group/laboratory/PBL quizzes (12 quizzes)

100%

Grading for the course is based upon a numeric score calculated as a percentage achieved from all possible points, as follows:

A = > 90 % correct
B+ = 87 – 89.9% correct
B = 80 – 86.9 % correct
C+ = 77 – 79.9% correct
C = 70 – 76.9 % correct
D = 65 – 69.9 % correct
F = < 64.9 % correct

According to our established policy, please note that fractional grades will **not** be “rounded up.”

The following Attendance, Remediation, Honor Code, and ADA policies have been adopted by the Florida State University College of Medicine for all courses:

Attendance Policy

FSU COM ATTENDANCE POLICY

COM Philosophy

We believe that:

Professionalism is a major component of our medical curriculum. We believe students should conduct themselves appropriately in the various educational activities of the curriculum. This conduct includes coming to educational activities on-time, using the laptop computers only for course work during the educational activity, and not disrupting the class if late. The faculty should also demonstrate professionalism, by starting and ending all scheduled educational activities on time and providing a course schedule with clearly explained course policies in the course syllabus. Any changes in the schedule should be given to the students in a timely manner.

Students will be accountable and personally responsible for attending all educational activities (small groups, labs, clinical experiences, examinations, lectures, computer sessions, etc.).

Unexcused absences reflect negatively on the goals and objectives of the medical curriculum and demonstrate unprofessional behavior by the respective student.

We owe it to our state legislature and the citizens of the State of Florida to provide a quality educational program that meets the needs of our students in preparing them for the M.D. degree.

Attendance Policy

Students are expected to attend all scheduled activities. Students are expected to be on time. Being on time is defined as being ready to start at the assigned time. If a student has an emergency that prevents her/him from attending a scheduled activity, s/he is to call and notify the Office of Student Affairs (Year 1/2) and request that they inform the supervisors/professors/clerkship faculty/education director for that activity. If at all possible, the student should also call and at a minimum, leave a message with one of the course/clerkship directors. It is important that students realize that their absence or tardiness negatively impacts a number of other people. Attendance, including tardiness, is part of the student's evaluation for professionalism. Negative evaluations may result in decreased grades and in severe cases, referral to the Student Evaluation and Promotion Committee.

Procedure for Notification of Absence

Year 1/2

If the student knows in advance of an upcoming legitimate absence, the online “Advance Request for Absence from Educational Activity(ies)” process should be followed as outlined below.

If the absence occurs due to an unforeseen emergency, the student should contact the course director and the Associate Dean for Student Affairs immediately to report the absence including the reason for the absence.

The implications for the absence (e.g., remediation, course grade adjustment, make-up exam, etc.) will be given to the student by the course director and final decisions regarding these actions shall rest with the course director.

The online “Request for Absence” process should be used for all absences, including post-illness absences, regardless of whether the student is requesting an absence from one or more classes or the entire day. Here is how it works.

- 1) Student completes online form: <https://apps.med.fsu.edu/absence>
(Form will only work in Internet Explorer)
- 2) The form is routed to student affairs for approval then to appropriate Course Directors/Instructors
- 3) Course Directors will approve/deny request
- 4) Students can check on the status of the progress of the request by clicking on the “Pending requests” link, where they will be able to see if the instructor(s) has taken action on the form. (If the instructor has not taken action within 24 hours, students can contact him/her directly to let him/her know that the request is pending.)
- 5) The student will receive an email indicating whether the request has been approved/denied.

Students must include all the courses/activities they plan to miss on the requested day of absence (lecture, small groups, quiz, exam, OSCE, etc.) If students plan to be gone the entire day and fail to include an activity/class on the form, they will NOT be excused from that particular activity/class. It will be considered unexcused. It is the students’ responsibility to ensure the form is filled out completely with all the courses/activities they will miss for that particular day.

If a student’s request has been denied, the email will not indicate the reason nor indicate which instructor denied the request.

Some reasons that are likely to automatically disqualify an advance request are: exams, CLC sessions and OSCEs -- unless it is for extreme circumstances (illness, family emergencies, etc).

Remediation Policy for Absences from Examinations, Quizzes, Small Group Sessions, Preceptor visits, and Clerkship Call

The remediation policies for absences from examinations, quizzes, small group sessions, and clerkship call are:

1. **POLICY ON MISSED EXAMINATIONS:** Students are required to take major in-term and final examinations. Based on Curriculum Committee policy, a student can only be excused from an examination by a course/education director decision based on the personal situation of the student. The Course/Education Director will determine the time of the exam make-up session. Also, according to the Curriculum Committee decision and the existence of the FSU COM honor code, the student will be given the same examination given to the other students. *In this course (BMS 6601), all examinations must be made up within one week of returning to class.*
2. **POLICY ON MISSED QUIZZES:** Students are required to take scheduled and unscheduled quizzes in the courses/clerkships. A student can only be excused from a quiz by a Course/Education Director decision based on the personal situation of the student. The student must make arrangements with the Course/Education Director to make up a missed quiz. Also, according to the curriculum committee decision and the existence of the FSU COM honor code, the student will be given the same quiz given to the other students. *In this course (BMS 6601), all quizzes must be made up within one week of returning to class.*
3. **POLICY ON MISSED SMALL GROUP SESSIONS, PRECEPTOR VISITS, AND CLERKSHIP CALL:** The student should contact the Course Director, small group leader, Clerkship Director or Education director for instructions on remediation of the missed session and material covered. *In this course (BMS 6601), missed small group sessions must be made up within one week of returning to class. They will be made up by handing in written answers to the questions in the small group cases and a written, one-page discussion of the material covered in the missed session.*

Academic Honor Code:

The Florida State University Academic Honor Policy outlines the University's expectations for the integrity of students' academic work, the procedures for resolving alleged violations of those expectations, and the rights and responsibilities of students and faculty members throughout the process. Students are responsible for reading the Academic Honor Policy and for living up to their pledge to ". . . be honest and truthful and . . . [to] strive for personal and institutional integrity at Florida State University." (Florida State University Academic Honor Policy, found at <http://www.fsu.edu/~dof/honorpolicy.htm>).

Students With Disabilities

The Florida State University adheres to Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990 (ADA) in prohibiting discrimination against any qualified person with a disability. Students with specific questions regarding the FSU policies governing students with disabilities may contact the Student Disability Resource Center.

Students with disabilities who wish accommodations based on a disability must notify the College of Medicine Office of Student Affairs and register with the FSU Student Disability Resource Center (SDRC).

In order to register with the SDRC the student must provide the Center with the required documentation. A definitive diagnosis of disability must be stated in the documentation. Details regarding the required documentation for each disability can be found at the SDRC website www.fsu.edu/~staffair/dean/StudentDisability.

Exam Protocol for Students with Disabilities at FSU College of Medicine

The Florida State University adheres to Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990 (ADA) in prohibiting discrimination against any qualified person with a disability. Students with specified questions regarding the FSU policies governing students with disabilities may contact the Student Disability Resource Center (SDRC).

Students who warrant accommodations based upon the functional effects of a physical or learning disability should adhere to the following procedure:

1. Student meets with a representative of the Student Disability Resource Center (SDRC), provides documentation of a disability and requests accommodations. (A definitive diagnosis of a disability must be identified in the documentation. Details regarding the required documentation for each disability can be found at the SDRC website: www.fsu.edu/~staffair/dean/StudentDisability.)
2. For entering students, this is best accomplished prior to the beginning of classes (e.g., Orientation Week). For all other students, it must be completed at least one month prior to the examination date when accommodations would be instituted.
3. SDRC staff will review the documentation to determine sufficiency and eligibility for accommodations. If additional documentation is needed, this may be obtained through the Office of Student Counseling Services (OSCS) at the COM or elsewhere in the community. If additional testing is required, temporary accommodations may be granted while documentation is completed.
4. Student and SDRC staff identifies the type of accommodations that are appropriate based upon the student's disability.
5. SDRC staff completes and signs a Faculty Letter addressed to the COM's Associate Dean for Student Affairs indicating that documentation supports specific accommodations.
6. Student signs Faculty Letter indicating agreement with suggested accommodations and understanding of his or her responsibility to present the letter to the Associate Dean for Student Affairs at the College of Medicine.
7. SDRC prints two copies of the Faculty Letter and retains a copy as a record of the initial meeting, eligibility and accommodation request.
8. Student will schedule an appointment to meet with the Associate Dean for Student Affairs within one week's time to present the second original Faculty Letter. The student is also encouraged to keep a copy of this document.

9. The Associate Dean for Student Affairs will review the letter, determine appropriateness of all requests based on the requirements for the college, and discuss concerns with student and/or call SDRC when appropriate.
10. The letter will be kept in a confidential place in the Office of Student Affairs and not made part of the academic record of the student.
11. Once accommodation have been confirmed, the student is to schedule an appointment with the OSGS.
12. The OSCE's at the COM will be the representative responsible for facilitating accommodations for medical school students who have been determined eligible for services. The OSGS will explain to the student how the accommodations will be facilitated.
13. The student will then be responsible for completing the SDRC Exam Sign-Up Sheet and ensuring that his/her Year 1/Year 2 Year and Course Directors overseeing the examination have signed it. Exam Sign-Up Sheets may be obtained from year 1/Year 2 Coordinators or the OSGS.
14. The student will return the completed SDRC Exam Sign-up Sheet to the SDRC at least **5 WORKING DAYS** prior to the scheduled date/time of the exam in order to facilitate testing/exam accommodations. Failure to meet this requirement will release the COM and SDRC from the responsibility of providing accommodations for that particular examination.
15. A special situation arises with the NBME examinations. Since these examinations need to be ordered well in advance of the test date, students who are requesting to take an NBME under special accommodations should complete the Exam Sign-Up sheet at **least 4 weeks** prior to the date the exam is to be administered.
16. Students who qualify for exam accommodations will follow SDRC's Testing Center policies. If the examination is not taken at the SDRC, the COM (in collaboration with SDRC) will coordinate the provision of other accommodations. This might occur for quizzes or shorter, in-class exams. The student is responsible for notifying the instructor at least five working days prior to the quiz/exam if on-site accommodations are desired. Except for extenuating circumstances, all Year1/Year2 integrated and Year1/Year2 NBME exams requiring accommodation will be administered at the SDRC.
17. For those students attending the regional campuses, Steps 1- 11 should be followed in order to be approved for accommodations. However, the Regional Campus Dean will be responsible for overseeing the implementation of the accommodations in collaboration with the Associate Dean for Student Affairs.
18. Provision of exam proctors and appropriate distribution of exams for students receiving accommodation will be administered by the Office of Medical Education (for Year 1/2 and the Regional Campus Deans (Year 3/4).

Unexcused Absences

“It will be the responsibility of the course/education directors to clearly state in their respective course/clerkship syllabi the implications for having an un-excused absence from a scheduled educational or examination activity in a course or clerkship.” For BMS 6601, students with more than 2 such absences in the Fall Term will not receive academic credit for the course and a grade of “F” will be submitted to the Registrar. Students who have an unexcused absence from an examination or a quiz will lose the entire score (points) awarded for that examination or quiz, and the final grade for the course will reflect this loss.

Evaluations

Student evaluations throughout the course are an important way of improving medical education, at the College of Medicine. Not only are your comments and suggestions valued, but the evaluation process represents one way for you to become familiar with the peer review process. Peer review is an important quality management function in all branches of medicine. In order for peer review to work properly, it must be taken seriously both by the evaluators as well as those being evaluated. Therefore, we ask that you give careful consideration to evaluations. When making comments, consider what you would say if you were face to face with the person to whom the comments are directed. How would you react if the comments were directed at you? Give thought to how learning resources were used in regard to the way you learn best. What worked for you and what did not? How is your time used optimally? Are you making adequate progress? Are you being challenged to improve? Be specific. Ultimately, your use of the evaluation process can help you learn how to improve your own medical practice.

Course Objectives

1. Demonstrate knowledge of the definition of Pathology and the activities, tools, and roles involved in the practice of pathology.
2. Demonstrate knowledge of general categories of disease conditions.
3. Develop a vocabulary to describe the immune system and its components.
4. Demonstrate knowledge of immune cell structure and function.
4. Demonstrate knowledge of immune cellular interactions.
5. Demonstrate knowledge of the tissues that are part of the immune system.
6. Demonstrate knowledge of the body's immune reactions to infections.
7. Demonstrate problem solving ability and diagnostic reasoning to diagnose immunologic diseases.
8. Demonstrate the ability to correlate microbial infection with immunologic findings.
9. Demonstrate the ability to correlate immunologic conditions with pathologic findings.
10. Develop a vocabulary that allows for description of disease processes and communicating findings to other health care workers and to patients.
11. Demonstrate knowledge of the molecular and cellular basis for inflammatory disease states.
12. Demonstrate knowledge of the molecular basis for neoplastic diseases.
13. Demonstrate knowledge of the pathophysiology of pathologic conditions encountered in clinical practice.
14. Demonstrate the ability to recognize abnormal gross and microscopic findings in the context of the clinical problem.
15. Demonstrate knowledge and interpretation of laboratory findings associated with disease conditions and be able to use the laboratory for diagnostic purposes, including indications for ordering, proper specimen collection, and sending and receiving.
16. Demonstrate appropriate application of autopsy findings to quality assurance for improvement of clinical practice.
17. Demonstrate the ability to form differential diagnoses based upon pathologic findings.
18. Demonstrate the use of clinical-pathologic correlation to understand disease conditions.
19. Demonstrate knowledge of the radiologic findings that accompany pathologic lesions.

20. Demonstrate problem solving ability when presented with patient scenarios including pathologic findings.
21. Demonstrate skills in evidence-based medicine to obtain information involved in solving case-based problems
22. Develop the ability to meet compliance standards when ordering laboratory tests.
23. Demonstrate professionalism in working with colleagues and faculty.
24. Demonstrate an attitude of care and concern for patients and their families affected by pathologic disease states.
25. Treat patients, as represented by laboratory, pathology, and radiologic specimens and records, with respect, dignity, and confidentiality.
26. Demonstrate knowledge of fundamental mechanisms of cell injury, repair and adaptation.
27. Demonstrate knowledge of common neonatal, pediatric and congenital diseases and their diagnosis.
28. Demonstrate knowledge of the pathogenesis and immunologic aspects of aging and principles of aging at the clinical, cellular and sub-cellular levels.
29. Locate appropriate resources (e.g. journal articles) and apply the information to small group cases and other pathologic discussions/study.

Integration with COM Goals and Objectives:

Knowledge

- * Demonstrate the application of the scientific bases of health, disease, and medicine to common and high impact medical conditions in contemporary society.
- * Describe the development, structure and function of the healthy human body and each of its major organ systems at the macroscopic, microscopic, and molecular levels.
- * Recognize and discuss the implications of altered structure and function (pathology and pathophysiology) of the body and its major organ systems that are seen in various diseases and conditions.
- * Identify changes in the structure and function of the human body associated with the aging process and be able to distinguish normal changes associated with aging from those that denote disease.
- * Describe the molecular basis of diseases and maladies and the way in which they affect the body (pathogenesis).
- * Demonstrate the ability to use basic biobehavioral and clinical science principles to analyze and solve problems related to the diagnosis, treatment, and prevention of disease.
- * Recognize the implications of cultural, social, economic, legal, and historical contexts for patient care.
- * Describe strategies to support lifelong learning via both print and electronic sources to assist in making diagnostic and treatment decisions (e.g., practice guidelines) and to

remain current with advances in medical knowledge and practice (e.g., medical information data bases).

Skills

- * Demonstrate the appropriate use of laboratory tests and radiographic studies in making diagnostic and treatment decisions.
- * Demonstrate the ability to evaluate the patient's medical problems and to formulate accurate hypotheses to serve as the basis for making diagnostic and treatment decisions.
- * Demonstrate the ability to acquire new information and data and to critically appraise its validity and applicability to one's professional decisions, including the application of information systems technologies for support of clinical decision-making.

Attitudes/Behaviors

- Demonstrate professionalism and high ethical standards in all aspects of medical practice, specifically competence, honesty, integrity, compassion, respect for others, professional responsibility and social responsibility.