BASIC AND CLINICAL IMMUNOLOGY COURSE
FOUR YEAR MD PROGRAM, SECOND YEAR
DETAILED PROGRAM

Address:
Department of Immunology
ul. Rokietnicka 5D
61-806 Poznań
Tel. +48-61-8547174 or -79
Fax. +48-61-8547173
Website: http://www.immuno.ump.edu.pl/

Course coordinator: Prof. Jan Żeromski, M.D., Ph.D.
contact: jzeromski@ump.edu.pl

Teachers:
Prof. Jan Żeromski, M.D., Ph.D.
Prof. Jan Sikora, Ph.D.
Assoc. prof. Grzegorz Dworacki, M.D., Ph.D.
Kosma Woliński, MD
Anna Olewicz-Gawlik, M.D., Ph.D., tel. 793263221
Mariusz Kaczmrek, Ph.D.
Maciej Majcherek, M.D., tel. 664758928
jakub Owoc, M.D., tel. 790599611
Małgorzata Łagiedo, M.Sc.
Bartosz Brzezicha M.Sc.
Mateusz Madejczyk, M.D., Ph.D., tel. 502680933
Alicja Kalinowska-Łyszczarz, M.D., Ph.D., tel. 606167631
Maciej Boruczkowski, M.Sc.

Recommended books: (newest editions):
1. Abbas, Lichtman: Basic Immunology. Saunders. (recommended)
2. Żeromski ed.: Introduction to Clinical Immunology. Poznan University Press 2009 (Basic, Laboratory, Clinical Immunolgy)
3. Chapel: Essentials of Clinical Immunology. Blackwell. (Clinical Immunology)

Topics and handouts:
The main topics are listed below in the course program.
Detailed topics can be found in corresponding chapters of the “Introduction to Clinical Immunology” textbook.
4-year M.D program, 2nd year, 2017/2018
Regulations of The Immunology Course

The course encompasses lectures (22 hrs), basic and laboratory classes (10 hrs) and seminars on clinical immunology (28 hrs).

A. Lectures
They cover up-to-date knowledge of basic and clinical immunology indispensable to understand practicals. Attendance is not compulsory but highly recommended.
During the lectures students write a midterm test that covers the material covered by so far given lectures.
The test cannot be repeated, and obtained scores by the student will be added to the total sum achieved at final examination. Absence from the test results in obtaining no points.

B. Basic and laboratory immunology
The classes are devoted to introduce immunologic diagnostic methods, five days, two hours daily.
Participation in all practicals is obligatory.
In case of absence on one day student should be prepared to answer for oral questions from this subject to the involved assistant. Absence from two or more practicals excludes the student from course.
Practicals end with a test that covers the activities of five days.
The test cannot be repeated, and obtained scores by the student will be added to the total sum reached at final examination. Absence from the test results in obtaining no points.

C. Clinical Immunology
Fourteen seminars, two hours daily. They include a short introduction to daily topic, presentation of clinical cases and laboratory data of given disease, discussion and conclusion of diagnosis. Students must be previously prepared for these classes. It is assumed that students will actively contribute in the presentation and discussion of these topics.
Participation in all 14 seminars is obligatory. In case of absence on one day student should be prepared to answer for oral questions from this subject to the involved assistant. Absence from 2 or more days requires repetition of the whole course in the next academic year.

General

- The attendance must be confirmed by the assistant or student’s signature on the attendance list. Students who exceed allowed absences will not be allowed to the final test and will be reported to the Dean’s Office.
- Any unjustified delay from the class above 10 minutes will be considered as an absence.
- The results of the final exam will be announced on the website of the department and reported to the Dean’s Office.
- Cheating or other kind of order disturbance on the exam may result in dismissing of the student and will be reported to the Dean’s Office.
- Any issues that are not mentioned in these regulations are subjected to the General Regulations of the University

The final test covers the whole information obtained during the course i.e. lectures and practicals. It consists of 100 multiple choice written test questions.

In the final evaluation scores from the midterm, practicals’ and final tests will be added to form a total pool of 140 points, out of this, at least 60% (84 points) score is needed to pass the examination and get a credit.

If the student doesn’t attend the final test or fail to obtain enough points, then this will count as failed 1st chance and will be noted in the index as unsatisfactory (2.0) mark.

Second and third chances of the final test will consist of 100 questions. Scores of previous tests will not count. In order to pass the student should answer correctly at least 60 questions.

Failure on three chances will disqualify the student from the course. This will result in the necessity of repeating the course on the next academic year after the assent of the Dean.
4-year program, 2nd year, 2017/2018 - Lectures

L1: Jan Żeromski, 26.09.2017 Tue 16\(^{00}\)-17\(^{30}\) Coll. Anatomicum. Horoszkiewicz Hall

The immune system: adaptive vs. innate immunity, features of innate and adaptive immune system, acute phase proteins, complement system, pattern recognition, cytokines, structures and cells involved, development of immune system, evolution of immunity – basic facts, Novel approaches in studying immunology.

L2: Jan Żeromski, 02.10.2017 Mon 16\(^{00}\)-17\(^{30}\) Coll. Stom., A205

Antigen (Ag) and its recognition: Ag structure, haptenes, Ag receptor molecules, Ag processing, presentation and recognition by B and T cells, superantigens, heat shock proteins.

L3: Grzegorz Dworacki, 10.10.2017 Tue 11\(^{00}\)-12\(^{30}\) Coll. Stom., A205

Monoclonal antibodies. CD classification. Cells involved in the immune response, cell migration and homing, the generation of diversity: different cell types and their co-operation, cell activation, the role of cytokines and cell adhesion molecules, antibody and immunoglobulin variability, L and H chain gene recombination, genes and structure of cell antigen receptor.

L4: Jan Żeromski, 17.10.2017 Tue 11\(^{00}\)-12\(^{30}\) Coll. Stom., A205

Effector mechanisms of immunity: humoral mechanisms, cell-mediated immune reactions. Activation and effector functions of lymphocytes and macrophages, molecular mechanisms of cytotoxicity, NK cells, cytotoxic mechanisms, the cytokine network.

L5: Jan Żeromski, 24.10.2017 Tue 11\(^{00}\)-13\(^{10}\) Coll. Stom., A205

 Regulation and manipulation of the immune response: mechanisms, the role of T cells (Treg), NKT cells, telomers, idiotypes, neuroendocrine factors, genetic control, immunomodulation, vaccines).

L6+Midterm test: Jan Żeromski, 07.11.2017 Tue 11\(^{00}\)-12\(^{30}\) Hospital, Przybyszewskiego 49, Zeyland Lecture Hall

Immunology of transplantation: genetics, MHC antigen inheritance and expression, mechanisms of graft rejection and its prevention, kidney transplantation and its types and types of rejection, graft vs. host disease, clinical aspects of transplantation, materno-fetal interactions, perspectives of xenografting.

L7: Jan Żeromski , 14.11.2017 Tue 11\(^{00}\)-12\(^{30}\) Coll. Stom., A205

Immunology of infection: immunity to viruses, bacteria and fungi, immune aspects of parasitic infections evasion of immune response by pathogens, immunology due to infection.

L8: Grzegorz Dworacki, 21.11.2017 Tue 11\(^{00}\)-12\(^{30}\) Hospital, Przybyszewskiego 49, Zeyland Lecture Hall

Tumor immunology: tumor antigens, anti-tumor immunity, immunological surveillance and immunosurveillance, tumor microenvironment, escaping immune mechanisms, immunosuppression, immunodiagnosis, immunotherapy, gene therapy.

L9: Grzegorz Dworacki, 28.11.2017 Tue 11\(^{00}\)-12\(^{30}\) Coll. Anatomicum. Nencki Lecture Hall

Hypersensitivity: definition, types and characteristics of four types, diseases associated with hyperseisitivty. Allergy: clinical entities, diagnostic aspects.

L10: Grzegorz Dworacki, 05.12.2017 Tue 11\(^{00}\)-12\(^{30}\) Coll. Anatomicum. Nencki Lecture Hall

Immunological tolerance and unresponsiveness: T- and B-cell tolerance, central vs. peripheral t., manipulation of tolerance, immunologically privileged sites ,artificial induction of tolerance, immunological ignorance, significance of tolerance in medicine.

L11: Jan Żeromski, 12.12.2017 Tue 11\(^{00}\)-12\(^{30}\) Coll. Anatomicum, Lecture Hall 16

Basic immunology - Labs (B1-B5)

B1: Humoral immunology – Małgorzata Łagiedo MŁ
1. Preview of humoral immunity - immunoglobulins and complement.
2. Introduction to immunological assays.
3. Methods for the assessment of humoral immunity and other proteins present in body fluids – quantitative assays, antibody specificity assays, screening for autoantibodies.

B2: Cellular immunology – Immunophenotype – Maciej Boruczkowski MB
1. Preview of the cellular immunity
2. Biological materials available for examination and principles of sampling
3. Means of cell isolation and methods of assessment
4. Applications in medical practice

B3: Cellular immunology – Mariusz Kaczmarek MK
1. Preview
2. Functional tests of lymphocytes
3. Evaluation of the function of phagocytic cells (phagocytosis, oxidative burst, migration).
4. Evaluation of the function of lymphocytes
5. In vivo tests
6. Clinical application of cellular functional tests

B4: Detection of proteins and nucleotides in situ – Bartosz Brzezicha BB
1. Types of tissue samples suitable for the assessment
2. Means of tissue preservation and/or fixations
3. Possibilities of immunological evaluation of tissue sections
4. Molecular methods in situ
5. Examples of applications

B5: Diagnostic immunology – Małgorzata Łagiedo MŁ
1. The basic algorithm in diagnosing autoimmune diseases
2. The basic algorithm in diagnosing immune deficiencies
3. Interpretation of obtained results of tests.

Clinical immunology - seminars (C1-C14)
Detailed contents according to the handbook "Introduction to Clinical Immunology" and “Essentials of Clinical Immunology”.

<table>
<thead>
<tr>
<th>Topic</th>
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<tr>
<td>C1. Autoimmune connective tissue diseases</td>
<td>G. Dworacki GD</td>
<td>/A. Olewicz AO</td>
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<td>C2. Endocrine specific autoimmunity</td>
<td>J. Owoc JO</td>
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<td>C3. Immunohematology</td>
<td>M. Majcherek MMj</td>
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<td>C4. Neuroimmunology</td>
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<td>C5. Immunology of respiratory tract</td>
<td>J. Owoc JO</td>
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<td>C6. Immunology of gastrointestinal tract</td>
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<td>C7. Immunopathology of the kidney</td>
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<td>C8. Immunomodulation and vaccines</td>
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<td>C9. Immunology of reproduction</td>
<td>M. Madejczyk MMd</td>
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<td>C10. Immunology of cardiovascular disorders</td>
<td>A. Olewicz AO</td>
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<td>C11. Allergy</td>
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<td>C12. Lymphoproliferative diseases, immunological approach</td>
<td>J. Żeromski JŻ</td>
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<td>C13. Selection and interpretation of immunological assays</td>
<td>M. Boruczkowski MB /M. Majcherek MMj</td>
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<td>C14. Immunopathology of the liver</td>
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<td>Groups</td>
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B5+test (ML)  |
| S1b    | 28.09 15.00-16.30  
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B5+test (ML)  |
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B5+test (ML)  |
| S2b    | 28.09 16.30-18.00  
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B1 (ML)  
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B5+test (ML)  |
| S3a    | 5.10  15.00-16.30  
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B2 (MB)  
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B3 (MK)  
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B4 (BB)  
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B5+test (ML)  |
| S3b    | 5.10  15.00-16.30  
B3 (MK)  
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B1 (ML)  
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B5+test (ML)  |
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B5+test (ML)  |
| S4b    | 5.10  16.30-18.00  
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B5+test (ML)  |

Place: Dept. of Immunology, ul. Rokietnicka 5D, 1st floor, room A (B2, B3, B5), room B (B1, B3)
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### Topics C1-C14

- **Anat.:** Coll. Anatomicum ul. Święcickiego 6,
- **Chmiela:** Collegium Chmiela ul. Święcickiego 4,
- **Coll.Stom.:** Collegium Stomatologicum, ul. Bukowska 70
- **SJO:** Department of Foreign Lang., ul. Marcelpińska 27

### FINAL EXAMINATION

<table>
<thead>
<tr>
<th>Take</th>
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<td>2nd</td>
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