

CHART OF DISCIPLINE/ SYLLABUS

1. Study Program Data

1.1 Higher Education Institution	"VICTOR BABEȘ" UNIVERSITY OF MEDICINE AND PHARMACY OF TIMIȘOARA
1.2 Faculty	MEDICINE
1.3 Department	V: INTERNAL MEDICINE I
1.4 Study Domain	HEALTH
1.5 Study Cycle	LICENCE
1.6 Study programme/ Qualification	MEDICINE/MEDICAL DOCTOR

2. Discipline Data

2.1. Discipline name	Hemostaseology							
2.2 Course tutor(s)	Assist. Prof. PhD Ivan Vlad-Sabin							
2.3 Practical activity tutor(s)	Assist. Prof. PhD Ivan Vlad-Sabin							
2.4 Year of study	III	2.5 Semester	I	2.6. Assesment type	Colloquium	2.7 Discipline rank	Content ¹⁾	DS
							Mandatory /Compulsory ²⁾	DFac

3. Duration/Estimated Time (number of hours/semester of teaching activity)

3.1 Number of hours/ week	4	3.2 lecture/course ³	2	3.3 laboratory ⁴	2
3.4 Total hours of curriculum	56	3.5 lecture/course ⁵	28	3.6 laboratory ⁶	28
Time distribution for educational activities					hours
Study support- manuals, lectures, references and notes ⁷					10
Additional documentation – library, dedicated platforms from domain ⁷					10
Documentation for seminars/ practical activity/ projects, themes, portfolios and essays ⁷					10
Tutorship ⁷					2
Assessment ⁷					2
Other activities ⁷					
3.7 Total number of hours for individual study ⁷	34				
3.8 Total number of hours per semester	90 1 credit = 30 hours				
3.9 Number of credits ⁸⁾	3				

4. Preconditions (if applicable and requested)

4.1 of curriculum	Physiology, Biochemistry, Genetics, Pathology
4.2 of competence	

5. Conditions (if applicable and requested)

5.1 for courses	<ul style="list-style-type: none"> • Mobile phones will be switched off during classes, phone calls during the course will not be tolerated, nor will students leave the classroom to answer personal phone calls; • Attendance at the course is mandatory, a maximum of 50% of the total absences being accepted.
5.2 for laboratories/practical activities	<ul style="list-style-type: none"> • Preparation in advance, through individual study of the concepts taught in the course (the student will practically apply to the internship, the concepts taught in the course; • Mobile phones will be closed for the duration of the labs, as phone calls during the lab will not be tolerated, nor will students leave the classroom to answer personal phone calls; • Students' lateness to the laboratory will not be tolerated, as this proves disruptive to the educational process; • Attendance at internships/practical work is mandatory, a maximum of 20% of the total absences being accepted.

6. Specific competencies and skills

Professional Competencies	<ol style="list-style-type: none"> 1. Knowledge of coagulation factors 2. Involvement of coagulation factors in the physiological and pathological processes 3. Identification of the pathological hemostasis process 4. Identification and implementation of specific anticoagulation indications 5. Knowledge of indications and contraindications for anticoagulation 6. Knowledge of indications and contraindications for thrombolysis 7. Management of coagulation and bleeding pathologies 8. Forming the diagnosis by corroborating the anamnestic data with those obtained from the clinical examination and paraclinical investigations; 9. The ability to explain the appearance of clinical signs and symptoms as well as changes in laboratory constants in a given condition.
Transversal Competencies	<ol style="list-style-type: none"> 1. Concern for professional improvement by training clinical thinking skills demonstrated by active participation in the course and practical internships; 2. Involvement in scientific research activities by participating in the elaboration of reports, studies, specialized articles; 3. Effective use of information sources and resources for communication and assisted professional training (Internet portals, specialized software applications, databases, online courses, etc.) both in Romanian and in an internationally spoken language

7. Discipline/Course objectives (based on the specific competences)

7.1 Discipline/Course general objectives	1. Acquiring basic knowledge about the coagulation process
7.2 Discipline/Course specific objectives	<ol style="list-style-type: none"> 1. Identification of coagulation factors and their involvement in the coagulation process 2. Knowledge of the main etiologies involved in altering the coagulation balance 3. Identification and systematic approach to the main coagulation problems

8. Learning results

Knowledge	<ol style="list-style-type: none"> 1. Enumerate the components of the hemostatic system: Students recognize the roles of platelets, vascular endothelium, coagulation factors, and fibrinolytic system, understanding how these elements work together to maintain balance between bleeding and clot formation. 2. Recognize abnormal bleeding and clotting signs: Students learn to identify clinical symptoms like bruising, hematomas, or thrombosis, correlating them with specific hemostatic disorders, and understanding their pathophysiological basis for accurate diagnosis. 3. Answer diagnostic questions about coagulation tests: Students interpret results such as PT, aPTT, and INR, understanding what abnormal values indicate, and how these tests guide the diagnosis and management of bleeding or thrombotic disorders. 4. Compare coagulation pathways: They analyze the intrinsic, extrinsic, and common pathways, understanding their differences and interactions, which is essential for understanding coagulation abnormalities and targeted therapies. 5. Enumerate treatment options for hemostatic disorders: Students recognize pharmacological agents like anticoagulants, antiplatelets, and replacement therapies, understanding their indications, mechanisms, and potential risks. 6. Recognize the importance of individualized management: They learn to formulate personalized treatment plans based on clinical and laboratory data, recognizing the need to balance bleeding risks with thrombotic tendencies for optimal patient care.
Skills	<ol style="list-style-type: none"> 1. Understanding the blood clotting process: Students will learn the detailed mechanisms of coagulation, including the roles of platelets, clotting factors, and vascular components to comprehend normal hemostasis and how it is maintained within the body. 2. Diagnosing bleeding and clotting disorders: Students will develop skills to identify clinical signs and symptoms of conditions like hemophilia, thrombocytopenia, and clotting factor deficiencies through patient history, physical examination, and laboratory tests. 3. Performing coagulation tests: Students will be trained to correctly perform, interpret, and troubleshoot essential laboratory assays such as PT, aPTT, INR, bleeding time, and platelet function tests to assess clotting function accurately. 4. Managing anticoagulant therapy: Students will learn to prescribe, monitor, and adjust anticoagulant medications like warfarin and novel oral anticoagulants, understanding their indications, dosing, potential side effects, and bleeding risk management. 5. Interpreting lab results: Students will become proficient in analyzing coagulation test outcomes, recognizing abnormal values, and integrating laboratory data with clinical findings to form accurate diagnoses and treatment strategies. 6. Recognizing bleeding risk factors: Students will be able to identify genetic, acquired, and iatrogenic factors that increase bleeding risk, enabling more informed clinical decision-making and personalized patient care. 7. Applying patient-centered treatment plans: Students will develop skills to create comprehensive, individualized management strategies for patients with clotting disorders, balancing risks and benefits of various therapies while considering patient preferences.
Responsibility and autonomy	<ol style="list-style-type: none"> 1. Students judge the severity of bleeding disorders by analyzing clinical symptoms and laboratory data, enabling them to prioritize appropriate diagnostic tests and treatments, ensuring timely intervention. They estimate the best therapeutic approach, validate test results, and formulate individualized care plans while maintaining professional autonomy in decision-making processes. 2. In managing anticoagulant therapy, students compare various medications, differentiate their mechanisms, and estimate the risks involved. They formulate personalized treatment strategies, validate patient responses, and prioritize safety by judging bleeding risks, exercising autonomy in adjusting doses, and ensuring optimal outcomes within a multidisciplinary healthcare environment. 3. When diagnosing clotting disorders, students differentiate between genetic and acquired causes, compare laboratory findings, and estimate disease severity. They identify key clinical features, validate results through repeat testing, and formulate appropriate, patient-centered management plans while exercising autonomy in their clinical judgments and intervention choices. 4. Students are responsible for judging the significance of coagulation test results, prioritizing which tests to perform first, and estimating their implications for diagnosis. They compare different diagnostic approaches, validate findings with clinical context, and formulate comprehensive management strategies that reflect their autonomous clinical reasoning skills. 5. In assessing patient risks for bleeding, students estimate the impact of various factors such as medication, comorbidities, or genetic predispositions. They differentiate between high and low risk, compare treatment options, validate patient data, and formulate tailored management plans while exercising decision-making autonomy within a professional and ethical framework.

9. Content

9.1. Teaching methods

Effective teaching methods for a hemostaseology course should utilize a variety of strategies to enhance understanding and practical skills. Lectures and PowerPoint presentations provide essential theoretical knowledge, supported by charts, diagrams, and animations to visualize complex blood clotting processes and coagulation pathways. These visual tools help students grasp difficult concepts more easily.

Case-based learning plays a crucial role by engaging students with real or simulated patient scenarios, encouraging application of theoretical knowledge to clinical situations. Small group discussions promote active participation, peer learning, and critical thinking, fostering deeper understanding through shared insights and debates.

Hands-on laboratory sessions are vital for developing practical skills such as performing coagulation tests, interpreting lab results, and understanding their clinical significance. Simulation-based training creates realistic scenarios for students to practice managing bleeding or clotting emergencies in a safe environment, improving their confidence and decision-making abilities.

Problem-solving exercises challenge students to formulate diagnoses and treatment plans, reinforcing their clinical reasoning. Incorporating online learning modules, videos, and quizzes offers flexible learning options, instant feedback, and self-assessment opportunities that complement traditional methods.

Utilizing diverse assessment techniques—including formative assessments like quizzes and case discussions, as well as summative evaluations—helps monitor student progress effectively. Combining these methods, with the aid of visual aids, practical sessions, case discussions, and digital tools, creates an engaging, comprehensive, and practical learning experience that prepares students to diagnose and manage hemostatic disorders confidently.

9.2 Course	Number of hours
1. Hemostaseology: definition, content, history. Cellular and plasma bases of hemostasis	2
2. The mechanisms and sequences of hemostasis	2
3. Hemostasis pathology. The practical principles are clinical semiology and diagnostic conduct in hemorrhagic diatheses and thrombophilia	2
4. Practical considerations regarding laboratory explorations of hemostasis: indications, laboratory techniques, diagnostic algorithms.	2
5. Hemorrhagic diseases as a result of vascular endothelial defects	2
6. Hemorrhagic diseases of platelet origin. Thrombocytopenia; Thrombocytopathies	2
7. Hemorrhagic syndromes due to coagulation factor deficiency: Congenital coagulopathies (hemophilia A/B, von Willebrand, other coagulopathies)	2
8. Acquired coagulopathies (IVDC, fibrinolytic syndromes, disorders acquired in various physiological states, infectious, autoimmune, neoplastic, surgical diseases)	2
9. Thrombophilia	2
10. Venous thromboembolic pathology. Pulmonary thromboembolism, cavernous sinus thrombosis, others (ovarian, renal and splenic)	2
11. Arterial thromboembolic pathology. Myocardial infarction, unstable angina pectoris, cerebral infarction, peripheral atherosclerosis	2
12. Therapeutic intervention in emergencies and critical conditions	2
13. Blood transfusion. Plasma derived preparations vs recombinant products in the current therapeutic arsenal of hemostasis pathology vs gene therapy.	2
14. Modern antiplatelet and anticoagulant preparations. Clinical and laboratory monitoring	2

Mandatory references:

1. Harrison's Principles of Internal Medicine, Loscalzo, Fauci, Kasper., ed McGraw Hill, editia 21, 2023
2. Hemostasis and Thrombosis, Nicholle Newman, editura American Medical Publishers, 2023

9.3 Seminars/ Laboratory /practical activity/ projects	Teaching-learning methods	Number of hours	Practical activity done by the students
1. Hemostaseology basics	• Lecture+discussion+studies - case studies	2	Presentation of typical examples of laboratory bulletins and interactive discussions on clinical cases at the end of each practical work
2. Laboratory tests in hemostasis	• Lecture+discussion+studies - case studies	2	Interpretation of coagulation reports
3. Natural process of coagulation	• Lecture+discussion+studies - case studies	2	Presentation of typical examples of laboratory bulletins and interactive discussions on clinical cases at the end of each practical work
4. Interpreting coagulation results	• Lecture+discussion+studies - case studies	2	Interpretation of test reports for thrombophilia
5. Interpreting complementary tests for diagnostic of blood disorders	• Lecture+discussion+studies - case studies	2	Interpretation of specific genetic analysis bulletins in congenital diseases
6. Case presentation	• Case study	2	Discussion
7. Case presentation	• Case study	2	Discussion
8. Case presentation	• Case study	2	Discussion
9. Case presentation	• Case study	2	Discussion
10. Case presentation	• Case study	2	Discussion
11. Case presentation	• Case study	2	Discussion
12. Case presentation	• Case study	2	Discussion
13. Case presentation	• Case study	2	Discussion
14. Case presentation	• Case study	2	Discussion
Mandatory references: 1.Harrisons Principles of Internal Medicine, Loscalzo, Fauci, Kasper,, ed McGraw Hill, editia 21, 2023 2.Hemostasis and Thrombosis, Nicholle Newman, editura American Medical Publishers, 2023			

10. Correlations between the content of the course and the requirements of the professional field and relevant employers

- The knowledge, practical skills and attitudes learned in this discipline provide the study basis for understanding the coagulation process and the main pathologies;
- The acquisition of moral benchmarks, the formation of professional and civic attitudes, which allow students to be correct, honest, non-conflictual, cooperative, understanding in the face of suffering, available to help people, interested in the development of the community;
- To know, respect and contribute to the development of moral values and professional ethics;
- To learn to recognize a problem when it arises and to offer responsible solutions to solve it.

11. Assessment

Activity type	11.1 Assessment criteria	11.2 Assessment methods	11.3 Percentage of the final grade
11.4 Course	<p>Knowledge for grade 5: The student can define a pathology, knows at a basic level the process of coagulation, bleeding, healing. The student identifies the coagulation factors. The student shows minimal knowledge of pathology and physiopathology. The student can provide details about the minimum necessary investigations.</p> <p>Knowledge for grade 10: The student can identify, specify complex pathophysiological mechanisms, discuss and provide complete details about pathophysiology, etiology, positive and differential diagnosis, evolution, prognosis and treatment about all topics included in the curriculum of the discipline.</p>	Ex: Written exam consisting of 50 multiple choice questions in a limited period of time	50%
11.5 Laboratory/ Practical activity	<p>Knowledge for grade 5: The student recognizes the minimum tests necessary for hemostasis, bleeding</p> <p>Knowledge for grade 10: The student can recognize most of the usual and special tests in hemostasis. He can specify the normal range as well as interpret the abnormal results. The student can integrate the results together with the symptoms to establish a correct diagnosis</p>	Ex: Practical exam consisting in an oral examination activity during the semester	50% Maximum 20% of the oral exam grade
<p>11.6 Minimum performance standard-basic knowledge</p> <ul style="list-style-type: none"> - assimilation of hemostaseology terminology - assimilation of the main symptoms and clinical signs characteristic of different diseases - knowledge of the most common maneuvers, diagnostic and therapeutic procedures - request, interpretation and integration in the clinical context of paraclinical investigations - formulating the diagnosis by corroborating the anamnestic data with those obtained from the clinical examination and paraclinical investigations. 			

Date 23.04.2026	Signature of the course holder Assist. Prof. PhD Ivan Vlad-Sabin	Signature of the laboratory/seminar holder Assist. Prof. PhD Ivan Vlad-Sabin
Signature of the Head of the University Clinic Prof. PhD Lighezan Daniel-Florin		
Date of approval in the Department 23.04.2026	Signature of the Head of Department Assoc. Prof. PhD Buzaş Dana-Roxana	

Note explicative

1) Regimul disciplinei (conținut)

- Se regăsește în planul de învățământ
- **pentru studiile de licență, poate fi**
 - i. **DF** (disciplină fundamentală)
 - ii. **DS** (disciplină de specialitate)
 - iii. **DC** (disciplină complementară)
 - iv. **DD** (disciplină de domeniu) – conform noilor standarde, nu va mai exista, dar în planurile de învățământ aplicabile se va regăsi până termină promoțiile
- **pentru studiile masterale, poate fi** – în standardele noi vor exista doar DF, DS, DC, dar în planurile de învățământ aplicabile se regăsesc încă denumirile vechi, până la modificarea acestora
 - v. **DAP** (disciplină de aprofundare)
 - vi. **DSI** (disciplină de sinteză)
 - vii. **DCA** (disciplină de cunoaștere avansată)

2) Regimul disciplinei (obligativitate)

- Se regăsește în planul de învățământ
- Poate fi
 - i. **DOB** (disciplină obligatorie)
 - ii. **DOP** (disciplină opțională)
 - iii. **DFac** (disciplină facultativă);

3) Numărul de ore de curs pe săptămână se regăsește în planul de învățământ

4) Numărul de ore de lucrări practice pe săptămână se regăsește în planul de învățământ

5) Se înmulțește numărul de ore de curs pe săptămână de la punctul 3.2. cu 14

6) Se înmulțește numărul de ore de lucrări practice pe săptămână de la punctul 3.3. cu 14

7) nr de ore de studiu individual (punctul 3.7.) = nr total ore (nr credite X 30) minus nr. ore din planul de învățământ (punctul 3.4). Aceste ore se împart între

Studiul după manual, suport de curs, bibliografie și notițe	
Documentare suplimentară în bibliotecă, pe platformele electronice de specialitate și pe teren	
Pregătire seminarii/ laboratoare/ proiecte, teme, referate, portofolii și eseuri	
Tutoriat	

8) Numărul de credite se găsește în planul de învățământ. Un credit este echivalent cu 30 de ore de studiu (activități didactice și studiu individual).