



Fourth (4th) year of Pharmacy study

First semester: from September to December

Exam period: December/early January

UE (Teaching unit)	ECTS
UE 41 HEALTH LEGISLATION AND ECONOMICS	4
UE 42A NEUROLOGY	5
UE 42B PSYCHIATRY	4
UE 43 NUTRITION AND METABOLIC DISEASES	7
UE 44 DIGESTIVE DISEASES	7
UE 45 HEART AND LUNGS	6
UE 46 HEART AND VESSELS	6
UE 47 CUTANEOUS AND OCULAR SYSTEMS	5
UE 48 RADIOACTIVITY AND PHARMACEUTICAL APPLICATIONS	6
UE 49 CANCER	6
UE 61 MEDICAL DEVICES	4

Some UEs have very few face-to-face lessons and teachers will drop courses on the e-Campus pedagogical platform early in the year for students to do personal work. For example, 1 hour of lesson could be equivalent to 6h / 7h of lessons realized in the form of personal work.



Quatrième (4^{ème}) année des études de Pharmacie

Premier semestre : de septembre à décembre

Période d'examens : décembre / janvier

UE (Unité d'enseignement)	ECTS
UE 41 LÉGISLATION ET ÉCONOMIE DE LA SANTÉ	4
UE 42A NEUROLOGIE	5
UE 42B PSYCHIATRIE	4
UE 43 NUTRITION ET MALADIES MÉTABOLIQUES	7
UE 44 PATHOLOGIES DES FONCTIONS DIGESTIVES	7
UE 45 CŒUR-POUMONS	6
UE 46 CŒUR-VAISSEAUX	6
UE 47 SYSTÈMES CUTANÉ ET OCULAIRE	5
UE 48 RADIOACTIVITÉ ET APPLICATIONS PHARMACEUTIQUES	6
UE 49 CANCÉROLOGIE	6
UE 61 DISPOSITIFS MEDICAUX	4

Certaines UE ne comportent que très peu d'heures de cours en présentiel et les enseignants déposeront des cours sur la plateforme pédagogique e-Campus en tout début d'année pour que les étudiants réalisent un travail personnel. Ainsi, par exemple, 1 h de cours pourra être équivalent à 6h/7h de cours réalisés sous la forme de travail personnel.

UE 41 Health legislation and economics

4 ECTS

Content

Classes*

- **Social security**
 - History
 - The model of social welfare in France
 - The role of social welfare
 - The impact of social welfare
 - Social security systems
- **Social security**
 - Administrative and financial organization of the general system (RG)
 - Compulsory health insurance
 - Health insurance: the ONDAM system
- **Health in numbers**
 - Health accounts (CMT, DCS)
 - Social security expenses
 - Deficit of the general system RG, all risks included
 - Health insurance expenses
 - The growth of health expenditure
- **Control of health expenditure**
- **Price and reimbursement of medical devices**
- **The notion of ethics/deontology**
 - Ordinal origin (common feature of the professions organized in Orders)
 - Definition of ethics
 - Scope of the code of ethics
- **Code of ethics for pharmacists (common obligations)**
 - General obligations
 - Particular obligations (pharmacy, hospital, manufacturer, wholesaler, biologist)
- **Sanction against breaches of professional ethics**
 - Notion of disciplinary fault
 - Disciplinary boards of the French order of pharmacists
 - Main procedural rules
- **Patients' rights**
 - Respect for the human body
 - Patients' right to health care and free choice
 - The right to consent to the care
 - Medical confidentiality and medical information

* Classes (all students in amphitheater).

Assessment

Final exam about classes.

Contacts

Hélène van den Brink
Eric Fouassier

UE 42 A Neurology

7 ECTS

Content

Module 1: Inflammatory and degenerative diseases

Classes*

- Reminders of neurophysiology
- Parkinson's disease and treatment
- Multiple sclerosis (MS) and treatment
- Alzheimer's disease and treatment
- Toxicity and neurodegeneration

Tutorials*

- Treatment of Parkinson's and Alzheimer's diseases

Module 2: Epilepsy, migraine, and other pathologies

Classes*

- Semiology of epilepsy and migraine, other neurological pathologies
- Treatment of epilepsy and migraine

Tutorials*

- Treatment of epilepsy and migraine

Module 3: Pain

Classes*

- Pain assessment
- Pharmacology of nonsteroidal anti-inflammatory drugs and opiates
- Management and treatment of pain, strategies for using drugs

Tutorials*

- Pharmacology of nonsteroidal anti-inflammatory drugs and opiates

* **Classes** (all students in amphitheater), **Tutorials** (small groups of students).

Assessment

Final exam about classes and tutorials.

Contact

Imad Kansau

UE 42 B Psychiatry

7 ECTS

Content

Classes*

Semiology of psychiatric diseases
Sedatives, anxiolytics, hypnotics
Neuroleptics
Lithium

* **Classes** (all students in amphitheater), **Tutorials** (small groups of students).

Assessment

Final exam about classes and tutorials.

Contact

Imad Kansau

UE 43 Nutrition and metabolic diseases

7 ECTS

Content

Module 1: Lipoprotein metabolism and dyslipoproteinemia

Classes*

- Lipoprotein metabolism
- Atherogenesis
- Biochemical exploration of dyslipoproteinemia and treatment of dyslipidemic patients
- Dietary recommendations
- Treatment and therapeutic strategy

Tutorials*

- Lipoprotein metabolism

Module 2: Diabetes

Classes*

- Metabolic syndrome, obesity and diabetes (epidemiology - semiology)
- Pancreatic hormones and glycemic control/blood sugar regulation
- Immunology of type 1 diabetes
- Biochemical exploration
- Dietary recommendations
- Oral antidiabetic drugs
- Insulin and insulin therapy. Treatment and therapeutic strategy of diabetes

Tutorials*

- Diabetes and metabolic disorders

Module 3: Phosphocalcic metabolism and bone diseases

Classes*

- Phosphocalcic homeostasis
- Biochemical exploration
- Treatment of phosphocalcic metabolic disorders

Tutorials*

- Phosphocalcic metabolic disorders

* **Classes** (all students in amphitheater), **Tutorials** (small groups of students).

Assessment

Final exam about classes and tutorials.

Contact

Jean-Louis Paul

UE 44 Digestive diseases

7 ECTS

Content

Module 1: Mouth, esophagus, stomach, and gut diseases

Classes*

Semiology and explorations of mouth, esophagus, stomach, and gut diseases
Pharmacology of anti-emetics, anti-diarrhea medication and drugs against constipation
Therapeutic strategies of gastro-oesophageal reflux disease (GERD) and gastroduodenal ulcers.

Tutorials*

Treatment of gastroduodenal ulcers, gastro-oesophageal reflux disease, constipation

Module 2: Liver, biliary tract and pancreas diseases

Classes*

Liver, biliary tract and pancreas diseases, exploration and treatment
Liver and pancreas biochemical explorations
Iron metabolism and biochemical markers of malnutrition
Therapeutic treatment of complications of cirrhosis
Drugs and xenobiotics hepatotoxicity
Viral hepatitis: viral markers, pathophysiology, and virological diagnosis
Prevention and treatment of viral hepatitis

Tutorials*

Liver diseases

* **Classes** (all students in amphitheater), **Tutorials** (small groups of students).

Assessment

Final exam about classes and tutorials.

Contact

Patrick Hindlet

UE 45 Heart and lungs

6 ECTS

Content

Module 1: Lung diseases

Classes*

Lung diseases (asthma, chronic obstructive pulmonary disease (COPD), acute respiratory distress syndrome (ARDS)...)

Pulmonary clinical toxicology

Pharmacology of asthma and COPD drugs

Therapeutic treatment and strategies for asthma and COPD; oxygen therapy

Module 2: Heart rhythm disorders

Classes*

Heart rhythm disorders

Heart rhythm toxicology

Antiarrhythmics

Module 3: Thromboembolic disease

Classes*

Thromboembolic disease

Pathophysiology and risk factors of thromboembolic disease

Treatment and therapeutic strategies of thromboembolic disease

Tutorials*

Treatment and therapeutic strategies of thromboembolic disease

* **Classes** (all students in amphitheater), **Tutorials** (small groups of students).

Assessment

Final exam about classes and tutorials.

Contact

Imad Kansau

UE 46 Heart and vessels

6 ECTS

Content

Classes*

- Arterial hypertension (high blood pressure)
- Coronary artery disease
- Heart failure
- Cardiovascular risk factors
- Laboratory tests in coronary artery disease and heart failure
- Pharmacology of drugs for cardiovascular system (except those for heart rhythm disorders)
- Therapeutic strategies for cardiovascular diseases
- Heart clinical toxicology

Tutorials*

- The blood pressure
- Arterial hypertension (High blood pressure), heart rhythm disorders
- Heart failure, coronary disease

* **Classes** (all students in amphitheater), **Tutorials** (small groups of students).

Assessment

Final exam about classes and tutorials.

Contact

Marie-Camille Chaumais

UE 47 Cutaneous and ocular systems

5 ECTS

Content

Module 1: Cutaneous system

Classes*

- Skin physiology
- Dermal route pharmacokinetics
- Skin semiology
- Main skin diseases
- Treatment of skin diseases
- Healing: pressure sores, ulcers, burns...

NB: cutaneous toxicology will be treated in immunology (allergies...)

Practical works*

- Fungal skin infections
- Parasitic skin infections (including entomology)

Module 2: Ophthalmology

Classes*

- Reminders of ocular physiology
- Eye diseases
- Treatment of eye diseases (including glaucoma)
- Ocular toxicology

* **Classes** (all students in amphitheater), **Practical works** (smaller groups of students in order to study in adapted practical rooms/laboratories).

Assessment

Final exam about classes.

Continuous assessment for the practical works with report writings, oral presentations and/or lectures. Attendance to practical works needs to be approved.

Contacts

Christine Lafforgue
Cécile Laugel

UE 48 Radioactivity and pharmaceutical applications

6 ECTS

Content

Classes*

General introduction and physical basics in radioactivity and its detection
Interactions between radioactive radiations and living beings
Radioactive sterilization
Radiation protection and legislation
Environmental exposures, radioactive waste, management of major crises
Chemical synthesis of radiolabelled molecules and their use (including pharmaceutical formulation)
Imaging and diagnosis
Therapeutic applications
Conference: professional experience

Tutorials*

Physical basics of radioactivity and imaging from the point of view of physics
Chemistry and use of radiolabelled molecules
Presentation of clinical cases

Practical works*

Radioactivity

* **Classes** (all students in amphitheater), **Tutorials** (small groups of students), **Practical works** (smaller groups of students in order to study in adapted practical rooms/laboratories).

Assessment

Final exam about classes and tutorials.
Continuous assessment for the practical works with report writings, oral presentations and/or lectures. Attendance to practical works needs to be approved.

Contact

Florence Agnely

UE 49 Cancer

6 ECTS

Content

Classes*

Epidemiology, natural history of cancer (malignant transformation, progression, metastatic process), diagnosis (imaging, biopsies, TNM classification)

Cancers: somatic genetic diseases (viral aetiology, oncogenes, anti-oncogenes, genetic predispositions...)

Chemical carcinogenesis (environment, tobacco, DNA damage, repair)

Antitumor immunity

Surgical treatments, radiotherapy

Cell therapy, monoclonal antibodies, and vaccines

Biomarkers for cancer

Therapeutic strategies and treatment of patients with solid tumors (colorectal cancer, breast cancer, prostate cancer, and lung cancer)

Preparation of anti-cancer drugs in hospitals

Toxicology of chemotherapy treatments (including central hemotoxicity)

Tutorials*

Clinical cases

* **Classes** (all students in amphitheater), **Tutorials** (small groups of students).

Assessment

Final exam about classes and tutorials.

Contact

Nathalie Chaput-Gras

Laurence Bonhomme-Faivre

UE 61 Medical devices

4 ECTS

Content

Classes*

- **The medical devices (MD)**
 - MD and combined products
 - Different classes of MD (rules and classification parameters)
 - European Community marking
 - Risk analysis
 - Device vigilance

* **Classes** (all students in amphitheater). **On line-lessons** downloaded from the DOKEOS pedagogical platform early in the year could be proposed.

Assessment

Final exam about classes.

Contacts

Najet Yagoubi