LIFE SCIENCES
Study Programmes
“Science is a way of life. Science is a perspective. Science is the process that takes us from confusion to understanding…”

Brian Greene
The Faculty of Science, Technology and Communication (FSTC) at a glance

<table>
<thead>
<tr>
<th>Faculties</th>
<th>Research Units</th>
<th>Campus Sites</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>5</td>
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<table>
<thead>
<tr>
<th>Students</th>
<th>Languages</th>
</tr>
</thead>
<tbody>
<tr>
<td>1,900</td>
<td>470</td>
</tr>
<tr>
<td>Bachelor &amp; Master students</td>
<td>more than 470 staff members</td>
</tr>
<tr>
<td>from 100 different countries</td>
<td>3 official languages</td>
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<table>
<thead>
<tr>
<th>International Students</th>
<th>Bachelor &amp; Master students</th>
<th>Staff Members</th>
<th>Study Programmes</th>
</tr>
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<tbody>
<tr>
<td>60%</td>
<td>1,900</td>
<td>470</td>
<td>30</td>
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<table>
<thead>
<tr>
<th>Doctoral School</th>
<th>Doctoral Candidates</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>more than 500</td>
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</table>

Join us on Facebook: www.facebook.com/fstc.uni.lu
Why study Life Sciences?

Ambitious Life Sciences and BioHealth community

INTERNATIONAL ENVIRONMENT
Located in the heart of the European Union, the University of Luxembourg has made international cooperations one of its priorities and considers it an important tool to reach excellence in research and education. The University has a strong commitment to Life Sciences/Biomedicine. Importantly, since more than 10 years, it has been part of Luxembourg government’s strategy to invest substantially in the Health sciences and technologies sector. Thus, Luxembourg has a young and ambitious Life Sciences and BioHealth community. Student cohorts at the University of Luxembourg are relatively small, allowing for a good learning atmosphere. Both students and teaching staff reflect the high degree of internationality which is part of the Luxembourgish society.

STRENGTHS
- Small class sizes & individual mentoring
- Outstanding modern infrastructure including the Learning Centre
- Multidisciplinary and multicultural approach
- Multilingual student life
- Opportunities for internships within the University of Luxembourg and outside (e.g. at research institutes)

Strong links with research
The Life Sciences study programmes are based at and operated by the Life Sciences Research Unit (LSRU). Research at LSRU seeks fundamental understanding of human diseases to help to detect, prevent and treat illness. Combining molecular, cellular and computational approaches, the researchers look deeply into how cells communicate, differentiate, migrate, renew themselves and function.

The LSRU was established in 2008 and is organised in six different laboratories or research groups:
- Signal transduction
- Cancer cell biology and drug discovery
- Molecular disease mechanisms
- Neuro-inflammation
- Immune cells and inflammatory diseases
- Systems biology

Research activities at LSRU are performed under the umbrella topic “Signaling Networks in Cancer and Inflammation”, with a focus on Tumour Biology. They closely collaborate with the Luxembourg Centre of Systems Biomedicine (LCSB), an interdisciplinary centre at the University of Luxembourg with a strong focus on Parkinson’s disease and Bioinformatics and other renowned Luxembourgian research institutions, like the Luxembourg Institute of Health (LIH), including a Department of Oncology and a Department of Infection and Immunity. Experts from these institutes are lecturers in our teaching programmes and can supervise Master and doctoral thesis.
Our Study Programmes

**Overview**

**BACHELORS (3 years)**

- Bachelor en Sciences de la Vie (BASV) - Filière Biologie, 3 ans
- Bachelor en Sciences de la Vie (BASV) - Filière Médecine, 1 an
- Bachelor en Médecine (BMED) - 3 ans
  
  Ouverture: septembre 2020

**MASTERS (2 years)**

- Master in Integrated Systems Biology (MISB)
- International Master of Science in Biomedicine (MBIOMED)
- European Master of Small Animal Veterinary Medicine (EMSAVM)

**POST-MASTER & DOCTORAL EDUCATION**

- Certificate of Small Animal Veterinary Practice (CSAVP)
- Certificate in Animal Health: Poultry Production (CAHPP)
- Certificate - Principles of Biobanking (CPB)
- Certificate in Animal Health: Poultry Production (CAHPP)
- Doctoral Programme in Systems and Molecular Biomedicine (DPSMB)

**30 ECTS**

**120 ECTS**
Ce bachelor permet d’acquérir de solides bases en biologie, bioinformatique, chimie, mathématiques et physique au cours des trois ans.

**ATOUTS**
- Possibilité d’obtenir un double diplôme en biologie au sein d’universités partenaires
- Un semestre obligatoire dans une université étrangère

**CONDITIONS D’ADMISSION**
- Diplôme de fin d’études secondaires
- Sélection sur dossier basée sur les matières scientifiques (30 places max.)

**DÉBOUCHÉS**
- Master en Biologie
- Opportunités professionnelles dans l’enseignement et la recherche

**INFORMATION ADDITIONNELLE**
**CONTACT**
basv@uni.lu

**CAMPUS**
Belval & Limpertsberg

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"Le Bachelor en Sciences de la Vie offre une grande diversité de cours, ce qui permet d’avoir une vue globale sur les différents domaines de la biologie et d’acquérir les connaissances nécessaires pour continuer en master. Les accords passés avec des universités partenaires représentent également un atout considérable de ce bachelor. Nous avons effectué la deuxième année à l’Université de Strasbourg et avons ainsi obtenu un double diplôme !"

Julie Lauer et Jérôme Oswald, alumni

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**PROGRAMME**

<table>
<thead>
<tr>
<th>Semestre 1</th>
<th>ECTS</th>
</tr>
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<tbody>
<tr>
<td>Academic induction</td>
<td>1</td>
</tr>
<tr>
<td>Biologie cellulaire et moléculaire</td>
<td>3</td>
</tr>
<tr>
<td>Biologie générale</td>
<td>2</td>
</tr>
<tr>
<td>Chimie générale et minérale</td>
<td>5</td>
</tr>
<tr>
<td>Chimie organique</td>
<td>2</td>
</tr>
<tr>
<td>Developmental biology</td>
<td>2</td>
</tr>
<tr>
<td>Geology</td>
<td>4</td>
</tr>
<tr>
<td>Mathématiques</td>
<td>5</td>
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<tr>
<td>Physique</td>
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<td><strong>Total</strong></td>
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<tr>
<td>Biologie cellulaire et moléculaire</td>
<td>3</td>
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<tr>
<td>Biologie générale</td>
<td>2</td>
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<tr>
<td>Biochemistry</td>
<td>3</td>
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<tr>
<td>Chimie générale et minérale</td>
<td>3</td>
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<tr>
<td>Chimie organique</td>
<td>3</td>
</tr>
<tr>
<td>English</td>
<td>1</td>
</tr>
<tr>
<td>Informatique</td>
<td>2</td>
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<tr>
<td>Mathématiques</td>
<td>5</td>
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<tr>
<td>Philosophie</td>
<td>1</td>
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<tr>
<td>Physique et biophysique</td>
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<td><strong>Total</strong></td>
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<table>
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<td>Biochemistry</td>
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<tr>
<td>Biologie animale</td>
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<tr>
<td>Biologie végétale</td>
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<tr>
<td>Écologie</td>
<td>2</td>
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<tr>
<td>Génétique</td>
<td>2</td>
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<tr>
<td>Molecular biology</td>
<td>3</td>
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<tr>
<td>Physique</td>
<td>6</td>
</tr>
<tr>
<td>Physiologie animale</td>
<td>2</td>
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<tr>
<td>Physiologie végétale</td>
<td>3</td>
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<tr>
<td><strong>Total</strong></td>
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<table>
<thead>
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<td>Biostatistics</td>
<td>7</td>
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<tr>
<td>Histologie</td>
<td>2</td>
</tr>
<tr>
<td>Microbiologie</td>
<td>4</td>
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<tr>
<td>Metabolites and nutritional physiology</td>
<td>2</td>
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<tr>
<td>Molecular biology</td>
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<td>Physiologie animale</td>
<td>3</td>
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<tr>
<td>Physiologie et communication cellulaire</td>
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<td>Virology</td>
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<table>
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<tbody>
<tr>
<td>Biostatistics</td>
<td>2</td>
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<tr>
<td>Biologie du développement</td>
<td>2</td>
</tr>
<tr>
<td>Biotechnology</td>
<td>1</td>
</tr>
<tr>
<td>Environnement</td>
<td>2</td>
</tr>
<tr>
<td>Histologie</td>
<td>4</td>
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<tr>
<td>Immunologie</td>
<td>4</td>
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<tr>
<td>Molecular biology</td>
<td>3</td>
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<tr>
<td>Nervous system</td>
<td>4</td>
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<tr>
<td>Techniques biologie moléculaire</td>
<td>2</td>
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<tr>
<td>Stage</td>
<td>4</td>
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<tr>
<td>Option - cours au choix</td>
<td>2</td>
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<tr>
<td><strong>Total</strong></td>
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**180 ECTS**

**FACULTY OF SCIENCE, TECHNOLOGY AND COMMUNICATION**
Dans sa seule et unique première année de la filière Médecine, ce bachelor permet d’acquérir de solides bases en biologie, chimie et physique, mais également en anatomie et histologie.

**ATOUTS**
- Poursuite des études de médecine au sein d’universités partenaires sélectionnées en France, Belgique et Allemagne

**CONDITIONS D’ADMISSION**
- Diplôme de fin d’études secondaires
- Certificats C1 officiels en français et en allemand d’une école de langue agréée
- Sélection sur dossier basée sur les matières scientifiques (100 places max.)

**DÉBOUCHÉS**
- Poursuite des études de médecine dans nos universités partenaires

"Le Bachelor en Sciences de la Vie est une formation académique, polyvalente et généraliste, bi- ou trilingue. La première année de la filière médecine partage des cours communs avec la filière biologie, complétés par des enseignements spécifiques. Le Bachelor permet une interaction enseignants/étudiants privilégiée aussi bien pendant les cours que lors des travaux pratiques."

Jean-Luc Bueb, directeur d'études

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**PROGRAMME**

**Cours** | **ECTS**
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**Semestre 1**
- Anatomie 3
- Biologie cellulaire et moléculaire 3
- Biologie générale 2
- Chimie générale et minérale 5
- Chimie organique 2
- Developmental biology 2
- Histologie 3
- Physiologie animale 2
- Physique 6
- Santé publique 2
- Options: Academic induction 1
- Medizinische Fachsprache 2
- **Total** | **30**

**Semestre 2**
- Anatomie 5
- Biochemistry 3
- Biologie cellulaire et moléculaire 3
- Biologie générale 2
- Chimie générale et minérale 3
- Chimie organique 3
- Histologie 4
- Philosophie 1
- Physique 1
- Physique et biophysique 5
- Options: Champs professionnel 1
- Médecine clinique 1
- **Total** | **30**

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**INFORMATION ADDITIONNELLE**

**CONTACT**
basv@uni.lu

**CAMPUS**
Belval & Limpertsberg

basv.uni.lu/medecine
Bachelor en Médecine (BMED)
Ouverture : septembre 2020

Le nouveau programme de Bachelor sera développé à partir d’une première année d’études médicales existante à l’Université du Luxembourg et se concentrera sur le développement précoce de compétences cliniques à travers une formation par simulation et du tutorat par des médecins aux capacités pédagogiques démontrées.

**ATOUTS**
- Insertion dans la pratique médicale dès le début de la formation
- Utilisation des dernières technologies
- Coopération étroite avec des hôpitaux et partenaires internationaux

**CONDITIONS D’ADMISSION**
- Diplôme de fin d’études secondaires
- Certificats C1 officiels en français et en allemand d’une école de langue agréée
- Sélection sur dossier basée sur les matières scientifiques

**DÉBOUCHÉS**
- Master en Médecine
- Master en Science

**PROGRAMME EN UN COUP D’ŒIL**
- **Durée**: 3 ans à temps plein / 6 semestres (180 ECTS)
- **Langues**: français, allemand, anglais
- **Frais d’inscription**:
  - 400€/semestre (1 & 2)
  - 200€/semestre (3 à 6)

**INFORMATION ADDITIONNELLE**
**CONTACT**
bmed@uni.lu
**CAMPUS**
Belval & Limpertsberg

“Nous proposons un cursus de compétences qui répond aux défis créés par le développement actuel de la médecine, en particulier avec l’émergence de la médecine personnalisée. Nous souhaitons aussi permettre à nos étudiants de Bachelor diplômés en médecine d’intégrer des programmes de Master dans nos universités partenaires avec un excellent niveau de connaissances et de compétences pratiques.”
Gilbert Massard, directeur d’études

**180 ECTS**
This Master enables students to acquire a deeper knowledge of biosciences taking into account new technologies. This involves handling large amounts of data and thus bioinformatics and network analysis are essential elements in this modern education in biosciences.

**STRENGTHS**
- Combination of life sciences and computational science
- Use of the most modern technologies in biosciences
- Early involvement in research projects
- Strong links with the Life Sciences Research Unit (LSRU) and Luxembourg Centre for Systems Biomedicine (LCSB) at the University of Luxembourg

**CAREER OPPORTUNITIES**
- Employment opportunities in the biotech and pharmaceutical industries
- Researcher in biological, biomedical or pharmaceutical laboratories
- Data scientist with a focus on biomedical applications
- Further studies at PhD level

**ADMISSION REQUIREMENTS**
- Bachelor degree in biosciences, bioinformatics or related field (24 participants max.)

**PROGRAMME AT A GLANCE**
- **Duration:** 2 year full-time programme/4 semesters (120 ECTS)
- **Language:** English
- **Registration fees:** 200€/semester
- **Application period:**
  - For EU students: January - August
  - For non-EU students: January - April

**ADDITIONAL INFORMATION**
- **CONTACT**
  - misb@uni.lu

- **CAMPUS**
  - Belval

“Systems Biology is the biology of the 21st century bringing together large scale measurements with data mining and network analysis.”

**Thomas Sauter, course director**
The joint international study programme in Biomedicine provides students with a strong multidisciplinary education in the fields of cardiovascular and metabolic diseases, neurosciences and immunology. They have the opportunity to experience a multidisciplinary research training as well as a multicultural approach of the scientific communities across the borders.

**STRENGTHS**
- Tri-national diploma with the the University of Strasbourg and the Johannes Gutenberg University Mainz
- Multidisciplinary and multicultural approach
- Small class sizes & individual mentoring
- Students use state-of-the-art experimental and computational facilities

**ADMISSION REQUIREMENTS**
- Bachelor degree in biosciences, bioinformatics or related field
- Application: via the University of Strasbourg (16 participants max.)

**CAREER OPPORTUNITIES**
- Managers, teachers or researchers in the pharmaceutical industry, health agencies, universities and hospitals at international level
- Further studies at PhD level

**PROGRAMME AT A GLANCE**
- Duration: 2 year full-time programme/ 4 semesters (120 ECTS)
- Language: English
- Registration fees: 200€/semester (first semester at uni.lu)
- Application period: March - May

**ADDITIONAL INFORMATION**
- CONTACT: mbiomed@uni.lu
- CAMPUS: Belval

**STUDY PROGRAMMES**
- LIFE SCIENCES
- FACULTY OF SCIENCE, TECHNOLOGY AND COMMUNICATION

**In collaboration with:**

**PROGRAMME**

### PROGRAMME AT A GLANCE

<table>
<thead>
<tr>
<th>Courses</th>
<th>ECTS</th>
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</thead>
<tbody>
<tr>
<td>Semester 1 - University of Luxembourg</td>
<td></td>
</tr>
<tr>
<td><strong>Mandatory courses</strong></td>
<td></td>
</tr>
<tr>
<td>Gene regulation / transcriptomics</td>
<td>4</td>
</tr>
<tr>
<td>Introduction to systems biology</td>
<td>4</td>
</tr>
<tr>
<td>Safety in the laboratory</td>
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<tr>
<td>Total</td>
<td>10</td>
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<tr>
<td><strong>Optional courses – Track A or Track B</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Track A</strong></td>
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<tr>
<td>Practicals in gene regulation</td>
<td>4</td>
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<tr>
<td>Practicals in systems biology</td>
<td>4</td>
</tr>
<tr>
<td>Practicals in bioinformatics</td>
<td>4</td>
</tr>
<tr>
<td>Protein structure and function</td>
<td>4</td>
</tr>
<tr>
<td>Proteomics</td>
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<td>Total</td>
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<td><strong>Track B</strong></td>
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<td>Academic writing workshop</td>
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<tr>
<td>Research practical</td>
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<tr>
<td>Semester 2 - Université de Strasbourg</td>
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<tr>
<td><strong>Mandatory courses</strong></td>
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</tr>
<tr>
<td>Biological responses: from targets to treatments</td>
<td>3</td>
</tr>
<tr>
<td>Cell responses: from receptors to signaling</td>
<td>3</td>
</tr>
<tr>
<td>Hot topics in biomedical sciences</td>
<td>3</td>
</tr>
<tr>
<td>Initiation to pre-clinical research (internship 105h)</td>
<td>3</td>
</tr>
<tr>
<td>Molecular pharmacology</td>
<td>3</td>
</tr>
<tr>
<td>Molecular vascular medicine and cardiology</td>
<td>6</td>
</tr>
<tr>
<td>Molecular aspects of dyslipidemia and diabetes</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td>24</td>
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</tbody>
</table>

**Optional courses**

- Advanced clinical trials | 3 |
- Foreign language | 3 |
- Genetically modified experimental animal models | 3 |
- Initiation to clinical trials | 3 |
- Regenerative medicine: strategies and therapeutic application | 3 |
- Therapeutic potential of stem cells | 3 |
- Total | 6 |

**Semester 3 - JG Universität Mainz**

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<th>Mandatory courses</th>
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</thead>
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<tr>
<td>Approaches and applications in molecular medicine and clinical immunology + research project in molecular medicine &amp; clinical immunology</td>
</tr>
<tr>
<td>Human neurobiology + research project in neurosciences</td>
</tr>
<tr>
<td>Total</td>
</tr>
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</table>

**Optional courses**

- Communication skills and rhetoric | 2 |
- Experimental animal course (European certification) | 2 |
- Foreign language | 2 |
- Introduction to radiology | 2 |
- Scientific data formatting and editing | 2 |
- Total | 6 |
Since 1992, the European School for Advanced Veterinary Studies (ESAVS) has been providing post-graduate training courses for veterinarians wishing to upgrade their knowledge in many areas of clinical veterinary medicine. These courses are the foundation of the European Master and Certificate programmes.

EUROPEAN MASTER OF SMALL ANIMAL VETERINARY MEDICINE (EMSAVM)

- The EMSAVM is a post-graduate qualification, also defined as a “professional Master degree”, which means that the degree is obtained by part-time formal course work (ESAVS courses) and individual written work (case logs, case reports and thesis) validated by examinations.
- The European Master degree corresponds to 120 ECTS credits and testifies an intermediary level of clinical competence and in-depth theoretical knowledge in a specific discipline as well as communicative and investigative skills.

Further information: www.esavs-master.org

CERTIFICATE OF SMALL ANIMAL VETERINARY PRACTICE (CSAVP)

- The CSAVP prepares the veterinarian to attain an intermediate level of competence in a specific discipline.
- It promotes the problem-solving approach and the concept of evidence-based medicine in daily practice.
- The CSAVP corresponds to 30 ECTS and involves modules in course work and written work (case logs) validated by examinations.

Further information: www.esavs-certificate.org

ADMISSION REQUIREMENTS

- Graduate veterinarians (for Master & Certificate)

PROGRAMME AT A GLANCE

- Duration:
  → EMSAVM: 4 year part-time programme (120 ECTS)
  → CSAVP: min. 2 years and max. 5 years (30 ECTS)
- Language: English
- Registration fees: 200€/semester + course fees (see esavs.eu)

CONTACT

- Master: emsavm@uni.lu
- Certificate: csavp@uni.lu

CAMPUS

Limpertsberg (+ other parts in Europe, depending on selected courses)

ADDITIONAL INFORMATION

esavs.eu
Certificate in Animal Health: Poultry Production (CAHPP)

In collaboration with the World Veterinary Education in Production Animal Health (WVEPAH), the Certificate in Animal Health: Poultry Production is designed for professionals already active in the poultry industry who wish to broaden their knowledge in the area of poultry health and production.

STRENGTHS

• Collaboration with the World Veterinary Education in Production Animal Health (WVEPAH)
• Recognition of both programmes by the World Organisation for Animal Health (OIE)
• Residential courses and distance learning
• Case-oriented and problem-solving approach

OBJECTIVES

The Certificate enables participants to:

• Deepen their expertise in the field of poultry welfare, production and health
• Recognise, diagnose and manage all common problems encountered in poultry practice
• Obtain competences to enforce the “World Organisation for Animal Health (OIE) recommendations” covered by the OIE Regulation Module issued to veterinarians
• Interact optimally with experts in the various aspects of the field, under the supervision of the Veterinary Service

PROGRAMME AT A GLANCE

• Duration: part-time programme (30 ECTS)
• Languages: English, French or Spanish
• Registration fees: 200€/semester + course fees (see wvepah.org)

CONTACT
cahpp@uni.lu

CAMPUS
Worldwide

ADDITIONAL INFORMATION

wvepah.org
Biospecimens have become a strategic tool for healthcare and medical research, research and conservation in biodiversity, animal, plant and microbial biology as well as in translational research and systems biology through all types of -omics applications. Optimal management of biospecimens and bioresources through biobanking for future research and conservation has now become a new discipline.

OBJECTIVES
• Provide the theoretical, operational and practical knowledge required to facilitate the activities of existing biobanks and assist the creation of new ones
• Encourage exchange of knowledge and skills across different thematic biobanking groups involved in biospecimen conservation, storage, science and research

LEARNING OUTCOMES
Persons who have completed this course will:
• Understand in depth and produce an oral synthesis of the common principles of practical biobanking
• Put different types of biobanks in perspective and draw conclusions about the theoretical underpinnings
• Apply the scientific basis of biobanking/biospecimen research in Standard Operating Procedure (SOP) development and implementation and in research exploitation of samples
• Question the logistical, practical and technical steps of biobanking, evaluate their coherence and adequation
• Compare different reports on biobank risk management and mitigation
• Develop Best Practices/SOPs
• Validate biobank protocols, training and technology transfers
• Analyse adequation to biobank Quality Management Systems (QMS) and the principles of certification, quality assurance and 3rd party ISO accreditation
• Master the regulatory, legal and ethical aspects of biobanking
• Produce biobank cost analysis and recovery reports

PROGRAMME AT A GLANCE
• Lifelong learning integrated biobanking academic course with written examination
• Duration: Full-time during 3 consecutive weeks
• Selection: max. 35 students
• Language: English
• Registration Fees: 2000€

ADDITIONAL INFORMATION
CONTACT
cpb@uni.lu
CAMPUS
Limpertsberg/IBBL

Certificate - Principles of Biobanking (CPB)
Cette qualification professionnelle spécialisée vise à autoriser l’exercice de la médecine générale. La formation spécifique en médecine générale à temps plein a une durée de trois ans au moins. Elle peut être organisée à temps partiel, en totalité ou en partie, sans que la durée totale, le niveau et la qualité de la formation ne soient inférieurs à celle de la formation à temps plein.

PUBLIC CIBLE
Porteurs du grade de master en médecine.

OBJECTIFS
• Apprendre à connaître les problèmes qui se présentent en médecine ambulatoire par le stage au cabinet du médecin généraliste
• Apprendre à identifier les stades précoces de la maladie et à différencier les pathologies banals fréquentes des maladies plus rares pouvant avoir un pronostic grave ou fatal
• Cerner la problématique individuelle du malade
• Effectuer des visites à domicile et d’évaluer l’environnement psychosocial et d’intégrer ces notions dans la prise en charge du patient
• Acquérir la capacité de faire un tri et d’acquérir les notions de médecine de première ligne
• Apprendre à gérer les situations nécessitant une concertation médicale et une prise en charge interdisciplinaire
• Gérer des situations d’urgence et de savoir initier des soins d’urgence en milieu extra-hospitalier
• Apprendre les principes fondamentaux permettant l’accompagnement des patients à la fin de leur vie
• Proposer des mesures centrées sur le patient dans le but d’améliorer son état de santé
• Acquérir la capacité fonction de coordination nécessaire pour un médecin de famille et d’apprendre à collaborer avec les services sociaux existants
• Apprendre à utiliser les techniques médicales à bon escient
• Intégrer toutes autres fonctions spécifiques à la médecine générale

INFORMATION ADDITIONNELLE

CONTACT
fsmg@uni.lu

CAMPUS
Limpertsberg

fsmg.uni.lu
The programme provides a high-quality research training to doctoral candidates and offers them complementary education to complete their knowledge and skills required for their career development.

**OBJECTIVE**

The overall objective is to enable excellent students to acquire both academic and transferable skills including:

- Scientific and personal skills
- Relational skills
- Self-management skills
- Leadership and management skills

**LEARNING OUTCOMES**

- Research ability and capacity to manage and present information
- Conducting research, including interdisciplinary research, and applying different technologies
- Achievement of a common ground of knowledge through a common track of taught courses
- Ability to teach and to communicate with target groups as part of the skill set required for the personal career development
- Independent thinking and ability to apply experience, expertise and knowledge to solve problems

**ENTRY REQUIREMENTS**

- Master in natural sciences, bioinformatics, medicine, or veterinary medicine
- Students with a background in physics or mathematics can also be accepted, based on their motivation and potential for interdisciplinary research

**PROGRAMME AT A GLANCE**

- **Research theme:** Molecular Biomedicine and Systems Biomedicine
- **Partners:** Joint project Life Sciences Research Unit (LSRU) + Luxembourg Centre for Systems Biomedicine (LCSB) + Luxembourg Institute of Health (LIH)
- **Language:** English
- **Current number of doctoral candidates:** 128

**ADDITIONAL INFORMATION**

**CONTACT**

dpsmb@uni.lu

**CAMPUS**

Belval

dpsmb.uni.lu

“**The Doctoral Programme in Systems and Molecular Biomedicine gave me the opportunity to further evolve my scientific knowledge and be part of a large doctoral community/family. I had the chance to participate not only in scientific courses but also in workshops that helped me understand how I could manage my time and tasks or further develop my goals for next career steps.**”

Maria Angeliki Pavlou
Research at the University’s Life Sciences Research Unit (LSRU) seeks fundamental understanding of human diseases to help us detect, prevent and treat illness. Combining molecular, cellular and computational approaches we look deeply into how cells communicate, differentiate, migrate, renew themselves and function. Central to this is gaining knowledge of the signals cells receive from their environment. Many high impact diseases are caused by abnormal cell communication and behaviour, including cancer and inflammatory diseases.

CONTACT
lsru@uni.lu
CAMPUS
Belval

MEMBERS
• 10 professors
• 25 post-docs and 27 doctoral candidates
• 12 technical and administrative staff

FUNDING AND COLLABORATIONS
• €6.7 million competitive grants (2016-2018)
• More than 40 national & international collaborations with research institutions, universities, companies & hospitals

PUBLICATIONS (2016-2018)
• 74 peer-reviewed articles in scientific journals

ADDITIONAL INFORMATION
CONTACT
lsru@uni.lu
CAMPUS
Belval

LSRU at a glance

Research areas

SIGNAL TRANSDUCTION
• Intercellular communication in cancer
• Cytokine signal transduction
• miRNAs and long non-coding RNAs
• Drug screening in 3D cancer models
• Metabolic rewiring in cancer

CANCER CELL BIOLOGY & DRUG DISCOVERY
• Drug targeting of RAS signalling
• Molecular cell biology of RASopathies
• Cancer cell biology of RAS associated stemness traits

MOLECULAR DISEASE MECHANISMS
• Molecular mechanisms underlying colon cancer initiation and development
• Role of the microenvironement and environmental factors on colon cancer
• Identification of biomarkers and therapeutic targets in colon cancer

NEURO-INFLAMMATION
• Astrocyte differentiation, maturation and phenotype acquisition
• Glia reactivity in a Parkinson’s disease-like context

IMMUNE CELLS & INFLAMMATORY DISEASES
• Role of neutrophils in rheumatoid arthritis
• Intracellular and extracellular role of S100A8/A9 in neutrophil pro-inflammatory functions

SYSTEMS BIOLOGY
• Model based Data Integration and Analysis of Disease specific Networks
• Tool development
• Cancer specific signaling networks and multi-scale modeling of cancer
• Integrated modelling and epigenetic regulation of metabolism
• Data mining of human clinical and cohort data
The University of Luxembourg is a European research-oriented university with a strong international and multilingual character. Founded in 2003, the university currently counts more than 6,000 students. Members of the university community come from all over the world.

Located in the heart of Europe, the Grand Duchy of Luxembourg boasts a colourful history, stunning landscape, multicultural environment and multilingual population. The thousand year old capital and five regions each have their own unique flavour and discoveries to be made. Experience contemporary and historic culture, explore the country’s hiking and cycling trails, and taste world-class cuisine and local wine.

visitluxembourg.com