# LFSAB1221

*2012-2013*

# Introduction to life science

| 3.0 credits | 30.0 h | 2q |
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| Teacher(s) : | Leloup Gaëtane ; Lefèvre Philippe (coordinator) ; |
| Language : | Français |
| Place of the course | Louvain-la-Neuve |
| Main themes : | The first part of the course will focus on the bases of cellular biology and physiology.<br>The physiological cell systems are approached, aiming at comprehending the necessity of physiological systems of the entire body:<br><br>1. Biochemistry: the chemical reactions of the living substance; the role of water<br>2. The cell: basic unit of the living<br>3. Biomolecules<br>4. Proteins: structures and functions<br>5. How do cells draw their energy from food?<br>6. From DNA to proteins<br>7. Synthesis and proteins addressing<br>8. Cell membrane transports<br>9. Cellular communications<br><br>The second part of the course will introduce the physiological systems of the entire body: the body is an open system that maintains a controlled inner environment (homeostasis) constantly mixed (blood and circulatory system), and exchanging substance with the outer environment through interfaces (respiratory system, digestive system and urinary system). Information exchanges are approached: within the body (neuroendocrinian mechanisms of the control of homeostasis) in the first place, and then between the body and the exterior (sensori-motor functions and upper functions of the nervous system). Last but not least, the reproductive function is analyzed. |
| Aims : | This course consists of an introduction to cellular biology and physiology for engineers. It comprises the "cellular" and "systems" aspects of physiology, and is accessible to all students who have successfully reached the baccalaureat. It is followed by the course FSA 2221: Introduction to life science - Part II.<br><br>This course focuses on the introduction to the cell world and its functioning as well as to the physiological systems of the entire body. It also constitutes a gate to engineers with regards to specialized teaching in biomedical engineering and bioengineering. There is no prerequisite for this course. Various introductory scientific books will be recommended in the framework of the course, and the written support will consist of teachers' transparences. Access to databases of various other courses, and links to reference scientific books will be encouraged.<br><br>*The contribution of this Teaching Unit to the development and command of the skills and learning outcomes of the programme(s) can be accessed at the end of this sheet, in the section entitled "Programmes/courses offering this Teaching Unit".* |
| Content : | The first part of the course will focus on the bases of cellular biology and physiology.<br>The physiological cell systems are approached, aiming at comprehending the necessity of physiological systems of the entire body:<br><br>1. Biochemistry: the chemical reactions of the living substance; the role of water<br>2. The cell: basic unit of the living<br>3. Biomolecules<br>4. Proteins: structures and functions<br>5. How do cells draw their energy from food?<br>6. From DNA to proteins<br>7. Synthesis and proteins addressing<br>8. Cell membrane transports<br>9. Cellular communications<br><br>The second part of the course will introduce the physiological systems of the entire body: the body is an open system that maintains a controlled inner environment (homeostasis) constantly mixed (blood and circulatory system), and exchanging substance with the outer environment through interfaces (respiratory system, digestive system and urinary system). Information exchanges are approached: within the body (neuroendocrinian mechanisms of the control of homeostasis) in the first place, and then between the body and the exterior (sensori-motor functions and upper functions of the nervous system). Last but not least, |
| Other infos : | Evaluation:<br>Project, written and oral exams<br>Materials:<br>Transparencies |

| Cycle and year of study : | > Master [120] in Statistics: Biostatistics<br>> Preparatory year for Master in Statistics: Biostatistics |
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| Faculty or entity in charge: | GBIO |

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