



**FEDERAL UNIVERSITY OF SANTA CATARINA
CENTER OF BIOLOGICAL SCIENCES
BIOCHEMISTRY POSGRADUATE PROGRAM**

1

Plan of work for Prof. Silvia Conde from NOVA Medical School
Lisboa/Portugal PVB supported by CAPES/PRINT II PPGBQA/UFSC

1) Discipline/Course: Fundamentals in the evaluation and management of cardiometabolic health

Number of credits: 02.

Professors:

- Prof. Silvia Conde – NOVA Medical School, Portugal (1.0 credit; 15 h/classes) – PVB/CAPES-PRINT
- Prof. Fátima Regina Mena Barreto Silva – Federal University of Santa Catarina, Brazil (1.0 credit; 15 h/classes).

Semester / Year: 1º Semester. 2024

Period: From **April 15 to 26** - For PhD and Master Students.

For regular students who have *in vivo* cardiometabolic and respiratory assessment as an approach to develop part of their graduate project. An interview will be part of the selection of student in order to prioritize the projects related.

Total Schedule: 30 h

Aims: The course addresses the fundamentals of cardiometabolic and respiratory intersection, and the core principles in the evaluation and management of obesity, type 2 diabetes and hypertension. The course will lecture on basic concepts and guide participants through interactive and hands-on learning providing the knowledge and tools necessary to work effectively in their Master and PhD projects.

Content

● Prof. Fátima RMB Silva and Prof. Silvia Conde: Course presentation and introduction.

● Prof. Silvia Conde: **Theoretical classes:** 1) pathophysiology and pharmacology of obesity; 2) pathophysiology and pharmacology of type 2 diabetes; 3) pathophysiology and pharmacology of hypertension; 4) intersection between cardiometabolic and respiratory diseases – the case of sleep apnea. Workshop – Models to study cardiometabolic diseases – from cells to animal models (2 sessions). **Practical classes for transfer of technology** (4 training classes with students): 1) Training on electrophysiology by extracellular measurements on



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CENTER OF BIOLOGICAL SCIENCES
BIOCHEMISTRY POSGRADUATE PROGRAM**

2

sympathetic nervous system and in the vagus nerve from normal and obese rodents; 2) Training on electrophysiology by extracellular measurements on sympathetic nervous system and in the vagus nerve from normal and obese rodents; 3) Training on electrophysiology by extracellular sympathetic nervous system and in the vagus nerve from normal and obese rodents; 4) Training on electrophysiology by extracellular sympathetic nervous system and in the vagus nerve from normal and obese rodents.

Seminar on Prof. Conde Research: Carotid body and cardiometabolic diseases: the other face of an oxygen sensor.

● **Programmatic Content and Schedule:** Class hours will be distributed as follows: 2 credits, equivalent to 30 hours (3 hours *per day* in 10 days) corresponding to the participation in the discipline.

Basic Bibliography

1) Dee Unglaub Silverthorn. **Fisiologia humana: Uma abordagem integrada**. 7. ed. Porto Alegre: Artmed, 2017.

2) Principles of Pharmacology: The Pathophysiologic Basis of Drug Therapy 4th Edition. by David E. Golan MD PhD (Author), Walters Kluwer

3) Preda, A., Carbone, F., Tirandi, A. et al. Obesity phenotypes and cardiovascular risk: From pathophysiology to clinical management. *Rev Endocr Metab Disord* 24, 901–919 (2023). <https://doi.org/10.1007/s11154-023-09813-5>

4) Xourafa, G., Korbmacher, M. & Roden, M. Inter-organ crosstalk during development and progression of type 2 diabetes mellitus. *Nat Rev Endocrinol* (2023). <https://doi.org/10.1038/s41574-023-00898-1>

5) ERS Handbook of Respiratory Sleep Medicine. Edited by Maria R. Bonsignore, Winfried Randerath, Sophia E. Schiza and Anita K. Simonds, 2nd Edition, ISBN: 978-1-84984-163-4

Papers related to the topics studied: See updated bibliography.

These updated papers will be chosen and distributed to the student during the course by Prof. Conde.

2) Schedule from 15 to 26 April, 2024.



**FEDERAL UNIVERSITY OF SANTA CATARINA
CENTER OF BIOLOGICAL SCIENCES
BIOCHEMISTRY POSGRADUATE PROGRAM**

3

Schedule	Activity	Conferencist
Day 1 – 14-17h	<ul style="list-style-type: none"> • Presentation and Introduction • Theoretical Class: Pathophysiology and pharmacology of obesity 	Prof. Fátima RMB Silva Prof. Silvia Conde
Day 2 – 14-17h	Theoretical Class: pathophysiology and pharmacology of type 2 diabetes	Prof. Silvia Conde
Day 3 – 14-17h	Theoretical Class: pathophysiology and pharmacology of Hypertension	Prof. Silvia Conde
Day 4 – 14-17h	Theoretical Class: intersection between cardiometabolic and respiratory diseases – the case of sleep apnea	Prof. Silvia Conde
Day 5 - 14-17h	Workshop 1: Models to study cardiometabolic diseases – from cells to animal models	Prof. Silvia Conde
Day 6 - 14-17h	Workshop 2: Models to study cardiometabolic diseases – from cells to animal models	Prof. Silvia Conde
Day 7 - 14-17h	Practical classes: Training on electrophysiology by extracellular measurements on sympathetic nervous system and in the vagus nerve from normal and obese rodents	Prof. Silvia Conde
Day 8 - 14-17h	Practical classes: Training on electrophysiology by extracellular measurements on sympathetic nervous system and in the vagus nerve from normal and obese rodents	Prof. Silvia Conde
Day 10 - 14-17h	Practical classes: Training on electrophysiology by extracellular measurements on sympathetic nervous system and in the vagus nerve from normal and obese rodents	Prof. Silvia Conde
Day 11 – 14 -17h	Seminar on Prof. Conde Research	Prof. Silvia Conde