



## **[“CHEM” ACADEMIC SCHEDULE]**

**Training in microalgae-related industrial processes**

**Academic coordinator: Tomás Lafarga Poyo/F.  
Gabriel Acién**

**Hours: 25 h**

*\*This program is subject to change with prior notice*



| DATE                  | TIME        | CLASS/ACTIVITY  | LOCATION <sup>i</sup> | PROFESSOR                          |
|-----------------------|-------------|---|-----------------------|------------------------------------|
| <b>MODULE 1</b>       |             |   |                       |                                    |
| July, 1 <sup>st</sup> | 9:00-12:00  | Biology and basic principles of microalgae cultures             | IFAPA research center | Jose María Fernández Sevilla (UAL) |
| July, 1 <sup>st</sup> | 12:00-14:00 | Training in biology and basic principles of microalgae cultures | IFAPA research center | Cintia Gómez Serrano (UAL)         |
| July, 1 <sup>st</sup> | 16:00-18:30 | Simulation of biological processes                              | UAL/On-line           | Enrique Rodriguez Miranda (UAL)    |
| <b>MODULE 2:</b>      |             |   |                       |                                    |
| July, 2 <sup>nd</sup> | 9:00-12:00  | Fundamentals of microalgae photobioreactors                     | IFAPA research center | Gabriel Acien (UAL)                |
| July, 2 <sup>nd</sup> | 12:00-14:00 | Training in fundamentals of microalgae photobioreactors         | IFAPA research center | Rebecca Nordio (UAL)               |
| July, 2 <sup>nd</sup> | 16:00-18:30 | Simulation of Photobioreactor                                   | UAL/On-line           | Gabriel Acien (UAL)                |
| <b>MODULE 3:</b>      |             |   |                       |                                    |
| July, 3 <sup>rd</sup> | 9:00-12:00  | Introduction to control of microalgae processes                 | IFAPA research center | Jose Luis Guzman (UAL)             |
| July, 3 <sup>rd</sup> | 12:00-14:00 | Evaluation of control strategies in microalgae photobioreactors | IFAPA research center | Enrique Rodriguez Miranda (UAL)    |
| July, 3 <sup>rd</sup> | 16:00-18:30 | Simulation of control strategies                                | UAL/On-line           | Enrique Rodriguez Miranda (UAL)    |
| <b>MODULE 4:</b>      |             |   |                       |                                    |
| July, 4 <sup>th</sup> | 9:00-12:00  | Harvesting and processing of microalgae biomass                 | IFAPA research center | Tomás Lafarga (UAL)                |
| July, 4 <sup>th</sup> | 12:00-14:00 | Training in harvesting and processing of microalgae biomass     | IFAPA research center | Martina Ciardi (UAL)               |
| <b>MODULE 5:</b>      |             |   |                       |                                    |
| July, 4 <sup>th</sup> | 16:00-17:00 | Techno-economic analysis of microalgae processes                | UAL/On-line           | Gabriel Acien (UAL)                |
| July, 4 <sup>th</sup> | 17:00-19:00 | Sustainability of microalgae processes                          | UAL/On-line           | Paula Pérez-López (PSL)            |
| <b>MODULE 6:</b>      |             |   |                       |                                    |
| July, 5 <sup>th</sup> | 9:00-10:30  | Visit to commercial facilities at Biorizon Biotech              |                       | Silvia Villaro (UAL)               |
| July, 5 <sup>th</sup> | 10:30-12:00 | Visit to commercial facilities at AQUALIA                       |                       | Silvia Villaro (UAL)               |
| July, 5 <sup>th</sup> | 12:00-14:00 | Commercial application of microalgae                            | UAL/Online            | Luisa Gouveia (LNEG)               |
| July, 5 <sup>th</sup> | 16:00-18:30 | Q&A<br>Conclusions  | UAL/Online            | Gabriel Acien (UAL)                |



| <b>CONTENT</b>   |   |
|--|---|
| <b>Module</b>  | <b>Professors</b>   |
| <b>MODULE 1: Biology and basic principles of microalgae cultures</b>   | Cintia Gómez Serrano (UAL), Cristina Cerdá Moreno (UAL), Jose María Fernández Sevilla (UAL)     |
| <b>MODULE 2: Fundamentals of microalgae photobioreactors</b>   | Rebecca Nordio (UAL), Nicole Dambruine (WUR), Gabriel Acién (UAL)                               |
| <b>MODULE 3: Harvesting and processing of microalgae biomass</b>   | Tomás Lafarga (UAL), Silvia Villaró (UAL), Martina Ciardi (UAL)                                 |
| <b>MODULE 4: Economic and sustainability analysis of microalgae processes</b>                                | Gabriel Acién (UAL), Paula Pérez-López (PSL)  |
| <b>MODULE 5: Commercial application of microalgae and techno-economic assessment of microalgae processes</b> | Luisa Gouveia (LNEG), Andrew Ward (ACWEB), Ainoa Morillas España (UAL) Ana Sánchez Zurano (UAL) |

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