



POLITÉCNICA



E.T.S. DE INGENIERÍA AGRONÓMICA,
ALIMENTARIA Y DE BIOSISTEMAS

Título de las prácticas (Title of the internship):

Data analysis in Computational Biology

Descripción de las funciones del alumno (Description of the student's tasks)

The student will join the Scientific Computing Service of CNB-CSIC, where they will develop -in cooperation with experimental groups- data analysis tasks applied to experimental results, and models to interpret them. The specific tasks will depend on the moment of incorporation and the interests of the student.

Currently, we are working on a project to analyze the adaptation mechanisms to the infection by IBDV. IBDV is a dsRNA virus causing a major poultry disease of high impact in avian farms. Cells resistant to IBDV infection have been isolated. Preliminary analysis shows it may be due to the presence of defective viral genomes (DVGs). The goal is to characterize these genomes and the cell response using RNAseq. We have cellular expression data ready for analysis, and we are waiting for availability of sequencing data from viral genomes.

Other lines of work deal with antibiotic resistance in collaboration with different experimental groups. On one hand we are exploring associations between certain resistances and chromosomal rearrangements in bacteria, and on the other hand, the metabolic mechanisms that allow some bacterial species to develop antibiotic resistance.

A different line of work deals with coronaviruses (since 6 years ago). We have analyzed diverse viral proteins and run drug screenings for potentially useful drugs to treat the infection. This work is currently on hold pending additional experimental development.

Other projects may come up before or during the stay of the students.

Requisitos (Prerequisites): *(indicar titulación y curso) (give Grade and academic year); otros requisitos adicionales (idiomas, informática, otros conocimientos, etc) (other additional prerequisites (languages, informatics, other knowledge, etc)*

Degree or Master student in areas of Life and Health Sciences, Bioinformatics, Computational Biology or Informatics/Computer Science.

English.

Tasks will be adapted to the training of the student.

Proyecto formativo (Training Project)

Module EXTERNAL PRACTICES. The fundamental goal of the external practices is to guide the student in applying his previously acquired knowledge to real tasks in a group work environment



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the realistically represents the work conditions the the students will encounter in their future roles. In this way, the student will be able to get familiar with a working environment (work schedule, responsibility, attitude, organization, etc),and with the adequate working methodology in profesional reality, contrasting and applying the acquired academic knowledge.

Actividades a desarrollar en la práctica académica (Activities that will be performed in the academic internship):

During their stay, students will have a chance to learn and use the scientific software tools required to develop their work in environments of High Performance Computing.

We will offer courses on Biosecurity, Biostatistics and R Programming (non-compulsory, but highly recommended if the student is not fluent in these topics). We are preparing a course on Artificial Intelligence using R.

To do their work, students must communicate and interact with scientific staff from experimental laboratories, as well as complement the information they receive with additional scientific data extracted from the scientific literature in English. They must communicate the results obtained, their interpretation and make suggestions for future development of subsequent experimental and analytic works.

The student will learn to write and elaborate reports of their work and to organize them for a final report (such as their Grade or Master Thesis).

They will be able to collaborate (if the initiative is restarted and there are applications) in training activities 4ºESO+Empresa and/or online seminars for secondary education institutions.

<p>Nº de plazas: (Nr. of places)</p>	<p>1-2</p>
<p>¿El alumno tendrá trato habitual con menores? (Has the student dealings with underage persons?)</p>	<p>Not habitually</p>



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Fecha de inicio: (Starting date)	
Fecha de fin: (End date)	
Horas semanales: (Weekly hours)	
Horario jornada laboral: (Working hours)	Flexible, between 09:00 and 17:00
Importe Ayuda/Bolsa de estudio: (Amount of fellowship / remuneration)	0 €/mes
Tutor académico: (Academic tutor (UPM)) Email:	
Departamento tutor académico: (Dept. of academic tutor)	
Tutor empresa: (External tutor)	José Ramón Valverde Carrillo
Email tutor empresa: (Email external tutor)	jrvalverde@cnb.csic.es



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Departamento tutor empresa: (Dept. of external tutor)	Informática Científica
Ubicación de la estancia de las practicas (Location of the internship)	CNB-CSIC. c/Darwin, 3. Campus UAM. Madrid.
ENTIDAD COLABORADORA: (Collaborating Entity)	CNB-CSIC
A cumplimentar por Oficina Prácticas ETSIAAB: Créditos a reconocer (Nº ECTS):	

Enviar por email a: [OFICINA DE PRÁCTICAS ACADEMICAS EXTERNAS – ETSIAAB](#)