**General information**

An intensive set of courses providing attendees with an introduction to the theoretical foundations as well as the practical applications of some of the modern statistical analysis techniques and machine learning methods currently in use.

12 courses of 15 h each are offered during 2 weeks.

Each course has theoretical and practical classes with a computer programme.

Students are free to choose the courses according to their interests, i.e., no restrictions besides those imposed by timetables, apply on the number or choice of courses.

**Registration**

40 people max per course.

Courses with less than 6 people will not be open.

<table>
<thead>
<tr>
<th>Price per course</th>
<th>Before June 6</th>
<th>After June 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Academia</td>
<td>200 €</td>
<td>250 €</td>
</tr>
<tr>
<td>Industry</td>
<td>300 €</td>
<td>350 €</td>
</tr>
</tbody>
</table>

25% discount for AEPIA and SEIO members.

Tuition fees include attendance to lectures and educational materials.

Fees will be independent from the number of enrolments.

Application via email: asdm@fi.upm.es

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A worldwide top 10 Maths & Stats summer school according to INOMICS:

https://blog.inomics.com/top-10-summer-schools-in-math-stats/

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**Organization**

P. Larrañaga  
Professor at UPM

C. Bielza  
Professor at UPM

B. Mihaljević, L. Antón  
PhD students

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**Computational Intelligence Group**

Escuela Técnica Superior de Ingenieros Informáticos
Universidad Politécnica de Madrid (UPM)
Campus de Montegancedo
Boadilla del Monte, 28660 Madrid (Spain)
http://www.dia.fi.upm.es/ASDM

Phone: 91-336-3675
Fax: 91-352-4819
Email: asdm@fi.upm.es

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**MADRID-UPM Advanced Statistics and Data Mining Summer School 2016**

Madrid, June 27—July 8, 2016

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Escuela Técnica Superior de Ingenieros Informáticos
Universidad Politécnica de Madrid (Spain)
http://www.dia.fi.upm.es/ASDM
This summer school complements the technical background of attendees in the field of data analysis and modelling.

Open to any student or professional seeking further knowledge about a field that is more and more involved in nearly all productive areas (Computer Science, Engineering, Pharmacy, Medicine, Economics, Statistics, etc.)

Also providing a set of computational tools to try the studied techniques on practical problems.

Teachers will make the course content accessible to students with all backgrounds.

### Programme

#### Week 1

**June 27-July 1, 2016**

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:45-12:45</td>
<td>C01: Bayesian Networks</td>
</tr>
<tr>
<td></td>
<td>C02: Time Series</td>
</tr>
<tr>
<td>13:45-16:45</td>
<td>C03: Supervised Pattern Recognition</td>
</tr>
<tr>
<td></td>
<td>C04: Bayesian Inference</td>
</tr>
<tr>
<td>17:00-20:00</td>
<td>C05: Neural Networks and Deep Learning</td>
</tr>
<tr>
<td></td>
<td>C06: Unsupervised Pattern Recognition</td>
</tr>
</tbody>
</table>

#### Week 2

**July 4-8, 2016**

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:45-12:45</td>
<td>C07: Statistical Inference</td>
</tr>
<tr>
<td></td>
<td>C08: Big Data with Apache Spark</td>
</tr>
<tr>
<td>13:45-16:45</td>
<td>C09: Text Mining</td>
</tr>
<tr>
<td></td>
<td>C10: Feature Subset Selection</td>
</tr>
<tr>
<td>17:00-20:00</td>
<td>C11: Support Vector Machines and Convex</td>
</tr>
<tr>
<td></td>
<td>Optimization</td>
</tr>
<tr>
<td></td>
<td>C12: Hidden Markov Models</td>
</tr>
</tbody>
</table>

### Instructors

- **C01**: C. Bielza, P. Larrañaga, B. Mihaljević (UPM)
- **C02**: A. Justel (UAM), L. Cayuela (URJC)
- **C03**: P. Larrañaga, C. Bielza (UPM)
- **C04**: M. Wiper, C. Ausín (UC3M)
- **C05**: J. Dorronsoro, A. Barbero, A. Suárez (UAM)
- **C06**: A. Otero (CEU-San Pablo)
- **C07**: R. Mínguez (UCLM)
- **C08**: F. Ortega (URJC)
- **C09**: F. Leitner (Leitner Catalytics S.L.)
- **C10**: B. Mihaljević, P. Larrañaga, C. Bielza (UPM)
- **C11**: J. Dorronsoro, A. Barbero (UAM), C. Alaíz (UC3M)
- **C12**: A. Álvarez (UPM)