

# Ciclo di seminari per il conseguimento di Altre Abilità Informatiche - a.a. 2016-17

Corso di Laurea Magistrale in Ingegneria Informatica

Svolgimento a cura di BAX ENERGY [www.baxenergy.com](http://www.baxenergy.com)

I seminari sono tenuti in lingua italiana.

## Title

“Modern concurrent data-oriented applications in C#”

## Dates

1. 28 September 2017 (3 hours);
2. 2 October 2017 (3 hours);
3. 5 October 2017 (3 hours);
4. 10 October 2017 (3 hours);
5. 12 October 2017 (3 hours);
6. 17 October 2017 (3 hours).

In each date, three hours lab; time: 15.00 - 18.00

Location: Aula D22 - Edificio della Didattica Polo di Ingegneria

## Requirements

- For the students
  - object oriented programming (e.g., in Java);
  - relational databases;
  - concepts of asynchronous programming;
  - basic knowledge of web development;
  - knowledge of C# or .NET is NOT a requirement.
- Logistics:
  - availability of a PC for each student, with access to the Internet.

## Course objectives

Introduce concepts and techniques for modern advanced full-stack development of data-oriented applications with a C# backend, with particular focus on the interaction with databases, asynchronous programming, and RESTful web services. The course also includes an introduction to modern IDEs and version control systems, applications in C# of architectural patterns such as inversion of control, and hints on web enabled front-ends in Angular. The course, making use of C# as a programming language, shall also act as a practical introduction to C# and .NET.

## Lecturers

Main course responsible:

- Luca Zagarella.

Other lecturers:

- Alberto Castro;
- Vincenzo Di Martino;
- Carmelo Florida;
- Salvatore Sorbello.

## Topics

1. Welcome, presentation of BaxEnergy and of the course.
2. IDEs for C# development. Version control systems.
3. Object Relational Mapping (ORM) systems in C# (e.g., Entity Framework);
4. Other technologies for interaction with databases in C# (e.g., Dapper)
5. Asynchronous patterns in C#;
6. No-SQL databases and interaction in C# (hints);
7. Some architectural patterns in C# (Inversion of Control, ...).
8. RESTful web service development in .NET;
9. Presentation layer with Angular 2 or higher (hints).
10. Lab conclusion and test.

## Notes

The lab has a practical approach. The explanations of all the topics will be accompanied by the presentation and interactive modification of a project that shows how each topic links with the others to build one full-stack application.