**RECOMMENDED PREREQUISITE REQUIREMENTS for BIOENGINEERING**

The Bioengineering Department at UCLA offers the following fields and subfields:

- Biosystem Science and Engineering
- Biomedical Instrumentation
- Biomedical Signal and Image Processing
- Molecular Cellular Tissue Therapeutics
- NeuroEngineering
- Medical Imaging Informatics

The following is a suggested list of prerequisite courses for each of the above areas of study. It is recommended that these courses be taken during undergraduate study.

<table>
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<tr>
<th>Area of Study</th>
<th>Engineering Major</th>
<th>Non-Engineering Major</th>
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| Biomedical Signal and Image Processing (BSIP) | 1 yr Computer Programming (in C++)  
1 yr Physics + Lab  
1 sem. Gen. Biology + Lab  
1 sem. Gen. Chemistry + Lab | Calculus and Analytic Geometry  
1 sem. Matrices and Differential Equations  
1 sem. Linear Algebra  
1 sem. Systems and Signals  
1 yr Computer Programming (in C++)  
1 yr Physics + Lab  
1 sem. Gen. Biology + Lab  
1 sem. Gen. Chemistry + Lab |
| Biomedical Instrumentation (BMI) | 1 undergrad Biology  
1 undergrad Chemistry  
1 year of Physics  
Calculus & Analytical Geometry  
Calculus of Several Variables  
Matrices & Differential Equations | Differential equations  
Linear algebra  
Min. 1 year organic and biochemistry, physics, and biology  
Calculus & Analytical Geometry  
Calculus of Several Variables  
Matrices & Differential Equations |
| Molecular Cellular Tissue Therapeutics (MCTT) | 1 sem. Biology + Lab  
1 sem. Chemistry + Lab  
1 year of Physics  
Calculus & Analytical Geometry  
Calculus of Several Variables  
Matrices & Differential Equations | 1 sem. Biology + Lab  
1 sem. Chemistry + Lab  
1 year of Physics  
Calculus & Analytical Geometry  
Calculus of Several Variables  
Matrices & Differential Equations |
| Biosystem Science and Engineering (BSSE) | 2 years of math; with linear algebra recommended  
1 year of physics  
1 year of chemistry; some organic recommended  
Some life science (e.g. basic cell & molec biology recommended.) | 2 years of math; with linear algebra recommended  
1 year of physics  
1 year of chemistry; some organic recommended  
Some life science (e.g. basic cell & molec biology recommended.) |
| NeuroEngineering (NE) | 1 undergrad Biology  
1 undergrad Chemistry  
1 year of Physics  
Calculus & Analytical Geometry  
Calculus of Several Variables  
Matrices & Differential Equations | Differential equations  
Linear algebra  
Min. 1 year organic and biochemistry, physics, and biology  
Calculus & Analytical Geometry  
Calculus of Several Variables  
Matrices & Differential Equations |
| Medical Imaging Informatics (MII) | 1 yr. calculus  
1 yr. linear algebra  
1 yr. chemistry  
1 yr. physics  
1 yr. computer science | 1 yr. calculus  
1 yr. linear algebra  
1 yr. chemistry  
1 yr. physics  
1 yr. computer science |

The following courses are strongly recommended: Matrices and Differential Equations, Infinite Series, Mathematics of Engineering and Science of Engineering Materials.

* Additional courses in undergraduate neurophysiology are highly encouraged.