AMAN UPADHYAY

Fourth Year Dual Degree, Department of Biological Sciences and Bioengineering, Indian Institute of Technology (IIT), Kanpur
amanup@iitk.ac.in | aman161upadhyay@gmail.com

Educational Qualifications

July 2014-Present	M.Tech. in Biological Sciences and Bioengineering | B.S. in Chemistry (Dual) **Indian Institute of Technology**, Kanpur **CPI: 8.63/10**
April 2012 – March 2013	Higher Secondary Certificate Examination (12th GRADE) [MSBSHSE] **Percentage: 79.7%**
April 2010 – March 2011	Senior Secondary Certificate Examination (10th GRADE) [MSBSHSE] **Percentage: 92.2%**

Scholastic Achievements

- **All India Rank 4142** in JEE ADVANCED 2014 among **150,000** candidates.
- Semester Performance Index **(S.P.I) 10/10** in 4th and 7th semesters among 1100+ students.
- Recipient of **INSPIRE Fellowship** awarded by DST to students inclined to pursue a career in scientific research.
- **99.25** percentile in JEE MAINS 2014 among **1,400,000** candidates.
- **Rank 25** (**99.975** percentile) in Maharashtra Talent Search Exam 2010 among **100,000** candidates.
- **All India Rank 1179** in National Science Olympiad 2009 organized by Science Olympiad Foundation

Research Projects

- **Investigating the presence of selenium hydrogen bonds in proteins** *July 2017 - Present*
  Advisor: Prof. R. Sankararamakrishnan, Dept. of Biological Sciences and Bioengineering, IIT Kanpur
  - Analyzed **huge** amounts of **Protein Data** (PDB) to investigate unknown noncovalent interactions.
  - Studied the pattern of occupancy factors and correlated it to the stability of a particular protein.
  - **Investigating the presence of selenium hydrogen bonds** in proteins using protein visualization tools and Quantum Mechanical calculations.
- **Luminescent Lanthanide Nanoparticles for Bioimaging Applications** *July 2016 - April 2017*
  Advisor: Prof. A.K. Patra, Dept. of Chemistry, IIT Kanpur
  - Synthesized a lanthanide complex linked with organic ligands having thiol and amino groups.
  - **Synthesized** and studied thiophilic **gold nanoparticles** to which the Ln(ligands) were covalently bonded.
  - The nanoparticle-lanthanide complex couple acted as a **therapeutic and diagnostic(theranostic) drug**.
  - **Tested successfully** the **diagnostic bioimaging applications** of the theranostic drug synthesized.
- **Application of electroceuticals to cure optic neuritis** *August-November 2017*
  Advisor: Prof. D.S. Katti, Dept. of Biological Sciences and Bioengineering, IIT Kanpur
  - **Designed** a cure for optic neuritis (a condition in Multiple Sclerosis) by replacing the damaged optic nerves by an **electroceutical** device which works as an **artificial neuron**.
  - Received an **A grade for the innovative ideation**, insights, research, term paper and presentation.
- **Normalization of Religious Ethics** *January-April 2017*
  Advisor: Prof. Vineet Sahu, Dept. of Philosophy HSS, IIT Kanpur
  - Awarded an **A grade** for researching religious practices', studying their moral implications and their relevance in today's world.
  - Suggested a possibly **better morality model** based on Ayn Rand's work.
- **The How's and Why's of The Great Economic Depression, 1929** *May-July 2015*
  Business Club, IIT Kanpur
  - Researched the complications associated with the Classical and the Keynesian **Macroeconomics**.
  - Made **insights** and inferences as to how such **recession** and **depression** periods can be avoided in future.

Technical skills

- Programming Languages: C | C++ | Python | R | MATLAB | Bash | Ruby | FORTRAN | HTML | SQL
- Softwares/Platforms: MS Excel | LATEX | Adobe Photoshop | GitHub | PyMol | Gaussian | MS Powerpoint | MS Word

Relevant Courses

Bioinformatics	Quantum Chemistry Computation	Machine Learning
Numerical Methods	Computer Programming for Chemistry	Programming and Algorithms
Biological Systems	Quantum Mechanics	Biotechnology
Linear Algebra	Probability and Statistics	Vector Calculus

- **Courses related to** Biochemistry, Neurobiology, Real Analysis, Differential Equations, Material Science, Statistical Mechanics .