AMAN UPADHYAY

Fourth Year Dual Degree, Department of Biological Sciences and Bioengineering, Indian Institute of Technology (IIT), Kanpur
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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

- Secured **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** by DST to students inclined to pursue a career in scientific research.
- Secured **99.25** percentile in JEE MAINS 2014 among **1,400,000** candidates.
- Secured rank **25** (**99.975** percentile) in Maharashtra Talent Search Exam 2010 among **100,000** candidates.
- Secured **All India Rank 1179** in National Science Olympiad 2009 organized by Science Olympiad Fndn.

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
  - Studied huge amounts of data from 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
  - Studied several reaction schemes and prepared organic ligands having thiol and amino groups.
  - Synthesized and studied thiophilic gold nanoparticles
  - Attached ligands to gold nanoparticles which were attached to certain therapeutic drug.
  - Studied the diagnostic bioimaging applications of the lanthanide complexes synthesized.

Selected Projects and Term Papers

- **Application of electroceuticals to the treatment of 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 inferences as to how such recession and depression periods can be avoided in future.

Technical skills

- Programming Languages- Proficient: C | Python | R | MATLAB | Basic : Bash | Ruby | C++ | FORTRAN | HTML
- Softwares- PyMol | Gaussian | ChemBiodraw | MS Office | LATEX | Adobe Photoshop | GitHub

Relevant Courses

Bioinformatics	Quantum Chemistry Computation	Machine Learning
Biological Systems	Computer Programming for Chemistry	Biotechnology
Quantum Mechanics	Probability and Statistics	Statistical Mechanics

- Courses related to Biochemistry, Neurobiology, Numerical Methods, Programming and Algorithms, Real Analysis, Vector Calculus, Linear Algebra, Differential Equations, Material Science.