Reading List – Chemistry 2020

**Organic Chemistry** – the 5 numbered texts in **bold** are the suggested ones

Buy yourself the standard first-year textbooks. – I suggest the 5 in bold but you will need others. These are reference texts so we are not expecting you to read them all the way through before you come but do get hold of them and start to read early, introductory chapters in all 5.

You can considerably reduce the price you pay for a new copy by picking up a secondhand one advertised in the science area or in the secondhand section of Blackwells.

Which one you choose is a matter of personal preference though the following are recommended. Also bear in mind that there is no one book for your entire course - it just doesn't exist and would be about 5,000 pages if it did.

   Others you might consider:
   A. Streitweiser and C.H. Heathcock, 'Introduction to Organic Chemistry'
   D.S. Kemp and A. Vellachio, 'Organic Chemistry'
   K.P.C. Volhardt, 'Organic Chemistry'
   Morrison and Boyd, 'Introduction to Organic Chemistry'
   R.O.C. Norman and J.M. Coxon, Principles of organic Synthesis'
   J.E. McMurry, 'Introduction to organic Chemistry'

2. **Carey and Sundberg 'Organic Chemistry', Springer 2007 - 2 vols (tackles more advanced stuff as well)**

A couple of other books which are also worth a mention at this stage:

   A good introduction to mechanisms in Organic Chemistry, with a few mistakes but in many places it explains things that others just don't tackle well.

   This is one of the landmark books on Organic Chemistry now in its 6th Edition. The format is more like a dictionary, it is slightly difficult just to read, but is an extremely useful reference source and almost all really serious students of Organic Chemistry get themselves a copy. If you can't work it out from anywhere else it is probably in March. It has 3 great indices and some little sections are killer good (e.g., Acids & Bases; Non-classical carbocations).

Other texts which are more advanced and may be specifically relevant to each tutorial will be referenced in your tutorial sheets. Particularly good are the Oxford Primer series of textbooks which cover all three branches of Chemistry. You should receive a free copy of the one entitled 'Foundations of Organic Chemistry' by M. Hornby and J Peach from the DP practical laboratory. There are several others that I'll recommend along the way but 2 others to get now would be:

5. **G.D. Meakins 'Functional Group: Characteristics and Interconversions'* OU Primer No. 35
Another that will be useful in the 2nd half of this year:

J.H. Jones 'Core Carbonyl Chemistry' OU Primer No. 47

- Also get a set of molecular models. Organic chemistry is a three dimensional subject and these models make visualization a lot easier - everybody uses them, even old punters like me. I guess that 10% of people can instinctively see all stuff in 3D at first but by the end of this year you will all need to. This best way to do this is by playing with models - it makes a real difference (especially on the Stereochemistry Tutorial). You can pick up a set from the Organic Chemistry book section of Blackwells on Broad St quite cheaply.

- Optional extra: some of you may not have come across ‘curly arrows’ or feel uncomfortable with them. If so, buy and read and work through:

These two will help to build you up to the stage where you can use Sykes (which will be key as soon as you start in October).

- The following book is recommended to for a short, accessible introduction to chemical biology:

Inorganic Chemistry - 2 numbered texts suggested

1. Weller Inorganic Chemistry, OUP (7th edn)
2. Housecroft and Sharpe, Inorganic Chemistry Pearson (5th edn)

These are general books recommended by most lecturers – I will suggest other ones for the tutorial work in addition to these. I would look at the opening chapters about atoms, quantum numbers and topics such as ionisation energy, lattice energy and Born Haber cycles.

Physical Chemistry - 2 numbered texts

Essential Reading:

1. Why Chemical Reactions Happen, by James Keeler and Peter Wothers

Highly Recommended Reading:

2. Chemical Structure and Reactivity: An Integrated Approach, by James Keeler and Peter Wothers

Study the first few chapters of each of these. They will help you transition from high school physical chemistry, to degree level. Focus your attention particularly on how we can mix atomic orbitals to build up molecular orbitals, that let us understand things like the bonding in diatomics, from hydrogen onwards. The idea of bonding and anti-bonding orbitals will likely be new, and of huge importance to understanding chemistry.