



## Subject: Biology Pre-University (Extension Material)

### Enrichment Ideas

Perhaps the best single thing you can do to help you prepare for university is to keep up to date with events and current affairs as they pertain to your subject. The simplest way to do this is to ensure that you regularly read quality journalism and search within this for articles related to your academic interests. Some suggestions include:

- Broadsheet newspapers: The Guardian, The Times, The Daily Telegraph
- BBC News online: [www.bbc.co.uk/](http://www.bbc.co.uk/)
- The Economist: [www.economist.com/](http://www.economist.com/)
- Reuters: <https://uk.reuters.com> (change edition for international news)
- The New Statesman magazine: [www.newstatesman.com/](http://www.newstatesman.com/)
- New Scientist magazine, news section: <https://www.newscientist.com/section/news/>

Another excellent way to stay up to date with recent developments in your field of interest is **podcasts**. There is a wealth of academic podcasts available online, covering virtually every subject or topic you can think of.

This links you to a page of with podcast links:

<https://thebiologist.rsb.org.uk/biologist-features/158-biologist/features/1803-12-of-the-best-podcasts-for-biologists>

The beauty of these is that they are usually free to download and are completely low-hassle for you. Listen to them at your convenience: or whenever and wherever you please: some I found.....yes I have checked these!

- Cambridge YouTube: you will need to search within this for biology related tips.....
- Cambridge online lectures at the University Streaming Media Service: <https://www.sms.cam.ac.uk/> all pages. This is their covid-19 research update page <https://www.sms.cam.ac.uk/media/3203754>
- Cambridge resources at TES: bio resources they have uploaded
- <https://www.tes.com/resources/search/?authorId=3585719&subjects=GB%7C0%7CScience%7C&subjects=GB%7C1%7CScience%7CBiology%7C>
- Oxford University podcasts: <https://podcasts.ox.ac.uk/units/department-earth-sciences>

**Go to a Zoo and Aquarium.....** all of these have virtual facilities....

- **The Cincinnati Zoo:** Check in around 3 pm, because that's the time the Zoo holds a daily Home Safari on its Facebook live feed: <https://www.facebook.com/cincinnati-zoo/>
- **Atlanta Zoo:** The Georgia zoo keeps a 'Panda cam' <https://zooatlanta.org/panda-cam/> livestream on its website.
- **Georgia Aquarium:** Sea-dwellers like African penguins and Beluga Whales are the stars of this aquarium's live cam: <https://www.georgiaaquarium.org/webcam/beluga-whale-webcam/>
- **Houston Zoo:** There are plenty of different animals you can check in on with this zoo's live cam: <https://www.houstonzoo.org/explore/webcams/> but we highly recommend watching the playful elephants.
- **The Shedd Aquarium:** This Chicago aquarium shares some pretty adorable behind-the-scenes footage of their residents on Facebook: <https://www.facebook.com/sheddaquarium/>
- **San Diego Zoo:** With what may be the most live cam options: <https://kids.sandiegozoo.org/videos>, this zoo lets you switch between koalas, polar bears, and tigers in one sitting.
- **Monterey Bay Aquarium:** It can be Shark Week every week thanks to live online footage of Monterey Bay's Habitat exhibit: <https://www.montereybayaquarium.org/animals/live-cams>
- **National Aquarium:** Walk through tropical waters to the icy tundra in this floor by floor tour: <https://aqua.org/media/virtualtours/baltimore/index.html> of the famous, Baltimore-based aquarium.



### Knowledge Extension

You could also take free online biology courses in genetics, biotechnology, biochemistry, neurobiology and other disciplines. Courses include *Fundamentals of Neuroscience* from Harvard University, *Molecular Biology* from MIT and an *Introduction to Bioethics* from Georgetown.

<https://www.edx.org/course/subject/biology-life-sciences>

These will be excellent to do to prepare....and free!!!

### Find a reading list from a university for Biological sciences degree:

See if you can find books second hand online! Most students buy and then sell.....

### Some ideas for preparatory reading, before arriving in university to study biology related degrees.

This is from Cambridge, but look at your own preferred university, they will publish their reading list too!

- Ashcroft, F. (2012) *The Spark of Life: Electricity in the Human Body*. London: Penguin Books.
- Greenfield, S. (1997) *The Human Brain: A Guided Tour*. London: Phoenix.
- King, J. (2011) *Reaching For The Sun: How Plants Work, 2nd ed.* Cambridge: Cambridge University Press.
- Lavers, C. (2000) *Why Elephants have Big Ears*. London: Victor Gollancz.
- Widmaier, E.P. (1998) *Why Geese don't get Obese (and we do)*. New York: W.H. Freeman and Co.

**Useful text-books for students** (discuss which to buy with your supervisors/course director you should be able to email):

- Hill, R.W., Wyse, G.A. & Anderson, M. (2016) *Animal Physiology, 4th ed.* Sunderland: Sinauer Associates, Inc.
- Hopkins, W.G. & Hüner, N.P. (2004) *Introduction to Plant Physiology, 3rd ed.* Hoboken: John Wiley & Sons, Inc.
- Randall, D., Burggren, W. & French, K. (2002) *Eckert Animal Physiology, 5th ed.* New York: W.H. Freeman & Co.
- Schmidt-Nielsen, K. (1997) *Animal Physiology, 5th ed.* Cambridge: Cambridge University Press.
- Taiz, L., Zeiger, E., Møller, I.M. & Murphy, A. (2015) *Plant Physiology and Development, 6th ed.* Sunderland: Sinauer Associates, Inc.
- Vogel, S. (2013) *Comparative Biomechanics: Life's Physical World, 2nd ed.* Princeton: Princeton University Press.

### Extend yourself! – for further reading, or for supervisors!!!!!!!

- Buchanan, B.B., Guissem, W. & Jones, R.L. (2000) *Biochemistry and Molecular Biology of Plants*. New York: John Wiley and Sons Ltd.
- Griffin, D.H. (1996) *Fungal Physiology, 2nd ed.* New York: John Wiley.
- Jennings, D.H. & Lysek, G. (1999) *Fungal Biology: Understanding the Fungal Lifestyle, 2nd ed.* Oxford: BIOS Scientific Publishers Ltd.
- Koeppen, B.M. & Stanton, B.A. (eds) (2008) *Berne & Levy Physiology, 6th edition*. Philadelphia: Mosby Elsevier.
- Moat, A.G., Foster, J.W. & Spector, M.P. (2002) *Microbial Physiology, 4th ed.* New York: John Wiley.
- Nobel, P.S. (2005) *Physicochemical and Environmental Plant Physiology, 3rd ed.* Amsterdam: Elsevier Academic Press.
- Willmer, P., Stone, G. & Johnston, I. (2004) *Environmental Physiology of Animals, 2nd ed.* Oxford: Blackwell Publishing Ltd.