

AQUIRING THE FUNDAMENTALS : AN ACCREDITED POWDER DIFFRACTION COURSE ON THE INTERNET

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In August 1999, building on accredited academic-based crystallographic web courses pioneered by Birkbeck College, University of London, for Protein Crystallography and Principles of Protein Structure, a new "Advanced Certificate in Powder Diffraction" was officially announced at the International Union of Crystallography congress in Glasgow. Offering tuition via the Internet on the fundamentals in powder diffraction, it is now running successfully into its third year. The background of student intake ranges from new PhD students to scientists, technicians and X-ray analysts in commercial companies.

The course runs for one academic year with course work taking around 6 to 8 hours a week to complete. It should not be considered equivalent to recreational web browsing, but as serious study. If this course is done as part of staff training and development, it is important that the employer recognize this; and that adequate training time is set aside as part of the working week. The "Advanced Certificate in Powder Diffraction" is assessed by a mixture of "coursework", computer based data analysis project and a formal written exam taken at a local university. To obtain the full qualification, the exam must be taken, but it is optional if only training and no formal qualification is required.

The course content covers a broad range of knowledge required for an "understanding" of powder diffraction. These include the Internet Skills required to do the course, Diffraction Instrumentation, Laboratory Methods, Synchrotron Sources and Methods, Neutron Sources, Diffraction Theory, Electron Scattering to Structure Factors, Structure Factors to Diffraction Intensities, the concept of Symmetry to 3-D Symmetry Elements, Point Groups, Space Groups, Space-Group Determination, Interpreting the IUCr International Tables, Qualitative Analysis, Quantitative Analysis, Indexing, Unit-Cell Refinement, Peak Shapes, Structure Refinement and the Rietveld Method, Modern Techniques & Applications, In-Situ Applications, Commercial Uses, Producing and Interpreting Crystallographic Journal Articles, Use of CIF (Crystallographic Information Format) and the use of Structural Databases.

The Advanced Certificate in Powder Diffraction website is at <http://pd.cryst.bbk.ac.uk/pd/>.