

# School of Pharmacy Laboratory Facilities



# Facilities

## About Us

The School of Pharmacy is the Faculty of Medical Science's newest School. We were established in August 2017 and are responsible for delivering the new Master of Pharmacy (MPharm) degree. Our bespoke laboratories and experienced staff provide excellent technical services for academic research.

## Categories for Research

In this guide, we have categorised our facilities and instrumentation into three areas: materials and processing, pharmaceuticals, and analytical services.

## Material Processing

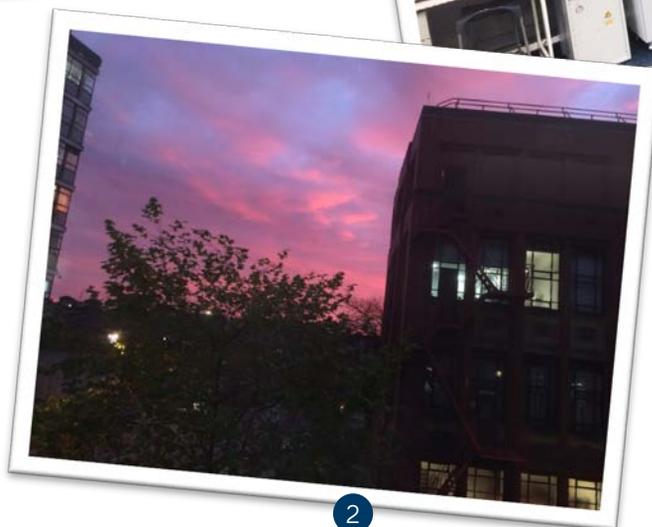
Demonstrating that we are not limited to the pharmaceutical industry, our facilities can be used and applied to food sciences, nanotechnology and chemical engineering to name a few.

## Pharmaceutics

The School of Pharmacy houses a suite of instrumentation directly associated with pharmaceuticals, including formulation, manufacture and drug delivery.

## Analytical Services

With a wide range of analytical equipment and software, we are fully capable of delivering research and development for both academic and commercial industry.



## Further Information

If you find an instrument within this guide that piques your interest please contact us

[pharmacy-technical@ncl.ac.uk](mailto:pharmacy-technical@ncl.ac.uk)

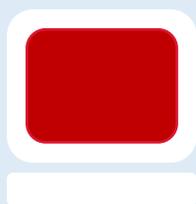
or phone our technical team

+44 (0)191 208 2341

## Fees and Rental

All of our facilities are available for rental within King George VI Building.

Please note: we only charge for the cost of use to the School and not for profit.



Visit our website  
for more  
information

[www.ncl.ac.uk/pharmacy](http://www.ncl.ac.uk/pharmacy)

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## Agilent Dissolution 708-DS

Analytical Services – Pharmaceuticals

Provides critical in vitro drug release information for quality control and drug development to predict in vivo drug release profiles.

Our dissolution rig is connected to an Agilent UV-Vis Cary Series 60 spectrophotometer for excellent analytical services.



## Agilent Infinity 1260

Analytical Services

Using high-performance liquid chromatography (HPLC), this instrument separates, identifies and quantifies each component in a mixture. One of our two HPLCs has quaternary pump facilitation.

HPLC is commonly used in analytical chemistry for the analysis of pesticides, hydrocarbons and compound identification. Other applications include quality control in pharmaceuticals and the food industry.



## Agilent UV-Vis Cary Series 60

Analytical Services

A versatile instrument commonly used in analytical chemistry for the quantitative determination of many analytes, from biological macromolecules to transition metal ions.

We recommend this kit for producing rapid, accurate and reproducible results.



## Beckman Coulter Particle Counter Z1

Analytical Services

This instrument uses electrical sensing zone methodology to count cells and particles. Designed with cell biologists in mind, this analyser offers rapid cell sample analyses.

Examples of use include red blood cell enumeration and size distribution measurements, rapid total cell counts and analysis of body fluid.



## Buchi Mini Spray Dryer B-290

Material Processing - Pharmaceuticals

Spray dries thermally sensitive materials and produces consistent particle size distribution.

Most common applications include spray drying and encapsulation of food and pharmaceuticals, but this is not limited. This instrument has been used in cosmetics, nanotechnology, cell transplantation, fuel cells and biotransformation amongst many other applications to date.



## Caleva Multi Lab

Material Processing - Pharmaceuticals

Incorporates a granulator, extruder and spheronizer into one small unit.

This instrument is particularly useful for efficient processing in many industries including pharmaceuticals, catalysts, chemical engineering and petrochemicals.



## Copley Next Generation Impactor

Material Processing -Pharmaceuticals

An impactor specifically designed in line with Pharmacopoeias for inhaled and nasal products.

Aerodynamic particle sizing is achieved by successively increasing the velocity of the air stream by forcing it through a series of nozzles containing progressively reducing jet diameters.



## HEL CrystalSCAN

Analytical Services - Pharmaceuticals

HEL's CrystalSCAN makes it easy for chemists to determine and optimise the solubility and recrystallization temperature of multiple samples, in parallel. Our kit features four reactors with independent stirring and temperature controlled zones, with analysis via turbidity probes.



## Labogene ScanVac CoolSafe

Material Processing - Pharmaceuticals

An instrument specifically designed for freeze drying, the CoolSafe is typically used to preserve a perishable material or make the material more convenient for transport.

This technique can be used in pharmaceuticals and biotech to increase the shelf life of live virus vaccines, biologics and other injectables.

It is also used in the food industry, chemical synthesis, ceramics and even in bacteriology to conserve special strains.



## Magitek Spinsolve NMR

Analytical Services

A revolutionary multinuclear instrument that provides powerful, high resolution NMR spectroscopy at low operating costs. This model is safe, convenient and easy to use.

NMR spectroscopy has a huge range of applications in general chemistry, purity determination, non-destructive testing, data acquisition in the petroleum industry, process control and acquisition of dynamic information.



## Malvern Kinexus Pro+ Rheometer

Analytical Services - Pharmaceuticals

This device measures the rheological properties of materials (defined as the study of the flow and deformation of matter).

Our Kinexus Pro+ is a research grade rheometer for complex fluids characterisation. It is particularly useful as it can be used for a broad range of sample types from pastes and gels to the most weakly structured liquids.



## Malvern Mastersizer 3000

Analytical Services - Pharmaceuticals

A laser diffraction particle size analyser that delivers rapid, accurate particle size distributions for both wet and dry dispersions.

With excellent Malvern software, the total package allows for simple method development of research intensive quality.



## Malvern Morphologi G3-ID with Raman Spectroscopy

Analytical Services - Pharmaceuticals

This fully automated instrument is designed to measure particle size, shape and chemical identity on one platform. It is built with simplicity in mind, with scientists of all levels of experience to produce useable data.

With Raman spectroscopy embedded into the system, component-specific particle size and particle shape distributions can also be measured.



## Malvern Nano ZS

Analytical Services - Pharmaceuticals

Described by Malvern as the world's most widely used system, this zetasizer is used for the measurement of the size, electrophoretic mobility of proteins, zeta potential of colloids and nanoparticles, and optionally the measurement of protein mobility and microrheology of protein and polymer solutions.

Our high performance zetasizer also enables the measurement of the molecular weight and second virial coefficient of macromolecules, and the DLS interaction parameter.



## Metrohm Coulometer 899

Analytical Services

This simplistic kit analyses the electric charge of a sample, with additional features including a titration cell and generator electrode with diaphragm for water content determination down to trace levels.

An indispensable part of many laboratories due to its reliability and simplicity of operation.



## Micromeritics AccuPyc II 1340

Analytical Services

A non-destructive technique used to obtaining true, absolute, skeletal, and apparent volume and density. Our model is fast, fully automatic and works at high-speed without sacrificing accuracy.

Gas pycnometry is used extensively for characterising a wide variety of solids such as catalysts, metal powders, soils, ceramics, active pharmaceutical ingredients, petroleums, cenospheres and solid foams.



## Netzsch Mastermix PML-1

### Material Processing - Pharmaceuticals

A planetary mixing and kneading machine that is essential in material processing for a number of industries.

Netzsch advertise that this instrument is suitable for adhesives, sealants, synthetic lubricants, dental and casting compounds, powdery reagents, liquid silicone rubber and battery compounds.



## Paraytec ActiPix D100

### Material Processing - Pharmaceuticals

Built by an award winning brand of UV area imaging detectors, this system has many applications in the life sciences.

The flexible nature of this instrument lends itself to research in many areas, including lab on a chip, drug release, particle and cell tracking and capillary electrophoresis to name a few.



## PharmAir Extract Technology Booth

### Material Processing - Pharmaceuticals

A clean, contained environment with a specially designed airflow system that possesses ultra-high quality filtration. This achieves high levels of operator and product protection, and eliminates cross contamination.

The booth provides Guaranteed Working Environment with opportunities for Pharmaceutical and Biotech industries.

Our bespoke model is housed within its own dedicated laboratory research space.



# PerkinElmer Spotlight 400 FT-IR Imaging System

Analytical Services

Allows imaging of large sample areas rapidly at high spatial resolution which allows FT-IR microscopy into new applications.

Materials analysis, forensics, pharmaceuticals, biomaterials, biomedical research and academic research are all supported by the Spotlight 400 System.

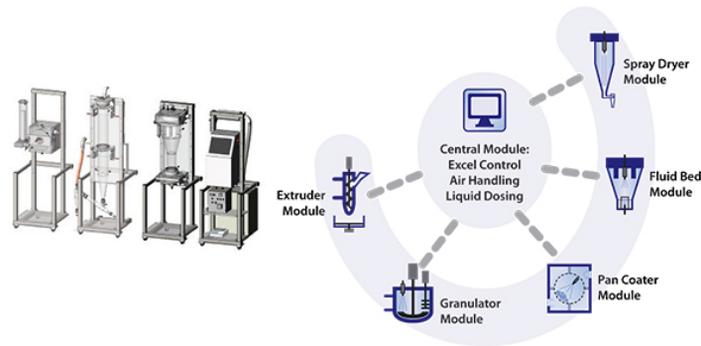


# Procept Fluid Bed Dryer 4M8

Material Processing - Pharmaceuticals

The most ideal equipment for formulation research and design, demonstration and educational purposes.

Alongside pharmaceutical applications, this instrument allows for drying, wurster coating and agglomeration.



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# Procept Granulator 4M8-TriX

Pharmaceuticals

A modular concept for research and design and clinical development. Procept's product matrix allows customers to combine multiple processing units with a single central control system.

This instrument conducts high shear granulation at low cost.



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# SMS Dynamic Vapour Sorption

Analytical Services - Pharmaceuticals

A gravimetric technique measuring how quickly and how much of a solvent is absorbed by a sample.

This is a valued tool in laboratories globally, within research and design, from polymorphism and compound stability studies to bulk and surface sorption effects of water and organic vapours. It is a vital part of quality control analyses and can even be found within the packaging industry to measure the effects of humidity and temperature on the contents.



## TA Differential Scanning Calorimeter Q2000

Analytical Services - Pharmaceuticals

This instrument is widely used in the pharmaceutical and polymer industry.

This technique is used across a range of applications such as examining polymeric materials to determine their thermal transitions, studying oxidative stability and general chemical analysis.



## TA Dynamic Mechanical Analyser Q800

Analytical Services - Pharmaceuticals

The Q800 is the world's best selling dynamic mechanical analyser (DMA) due to its state-of-the-art technology.

Excellent in applications of analysis of relative humidity, but not limited as the DMA is used in verification of ideal material behaviour with many other opportunities for experimentation.



## TA Thermogravimetric Analyser Q500

Analytical Services - Pharmaceuticals

Sensitive, precise automation of thermogravimetric analysis (TGA) has numerous applications with outstanding performance delivered.

TA recommend this instrument for high resolution or modulated TGA, with examples of use including the effect of additives and verification of thermal events.



## X-Ray Diffractometer

Analytical Services

Designed by Malvern Panalytical, it covers the largest set of X-ray diffraction, scattering and imaging applications in one instrument.

Large doors allow access to the system for several people (i.e. teaching), but at the same time it is perfect to perform measurements in demanding research and design environments in several industries.





This publication is intended as advance publicity for information and guidance purposes only. Fees and availability of laboratory facilities are subject to change. For further information, contact a member of staff in the School of Pharmacy.