## MODULE DESCRIPTOR

### Module Title

Advanced Pharmaceutical Analysis and Quality Control

| | | | |
|---|---|---|---|
| Reference | ASM040 | Version | 3 |
| Created | April 2022 | SCQF Level | SCQF 11 |
| Approved | May 2019 | SCQF Points | 15 |
| Amended | June 2022 | ECTS Points | 7.5 |

### Aims of Module

To enable students to evaluate, problem solve and develop skills in a range of advanced analytical techniques for the analysis of drugs and medicines. To enable students to understand and evaluate quality assurance and control systems for medicine manufacture.

### Learning Outcomes for Module

On completion of this module, students are expected to be able to:

| | |
|---|---|
| 1 | Critically understand the principles and applications of advanced analytical techniques for the determination of a drug or medicine. |
| 2 | Demonstrate competence in practical skills on a selection of advanced instrumental techniques. |
| 3 | Validate an appropriate quality assurance and control system for medicine manufacture. |

### Indicative Module Content

Pharmaceutical drug/medicine analysis, use of pharmaceutical monographs for the analysis of formulated preparations, extraction methods. Advanced analytical techniques include: liquid chromatography, gas chromatography, mass spectrometry, capillary electrophoresis, fluorescence spectroscopy, (derivative) ultra-violet spectroscopy, Raman spectroscopy, infrared spectroscopy. Quality assurance: Principles, procedures, test methods, records, reporting, data management, auditing and sampling; laboratory accreditation and accreditation regimes; standards GLP and GMP.

### Module Delivery

The module will be delivered by lectures, tutorials and laboratory workshops.

| Module Ref: | ASM040 v3 |
|---|---|

| Indicative Student Workload | Full Time | Part Time |
|---|---|---|
| Contact Hours | 30 | N/A |
| Non-Contact Hours | 120 | N/A |
| Placement/Work-Based Learning Experience [Notional] Hours | N/A | N/A |
| TOTAL | 150 | N/A |
| *Actual Placement hours for professional, statutory or regulatory body* | | |

## ASSESSMENT PLAN

*If a major/minor model is used and box is ticked, % weightings below are indicative only.*

### Component 1

| Type: | Coursework | Weighting: | 60% | Outcomes Assessed: | 1, 3 |
|---|---|---|---|---|---|
| Description: | Technical report critically evaluating analytical and quality control methods for a given medicine. | | | | |

### Component 2

| Type: | Coursework | Weighting: | 40% | Outcomes Assessed: | 2 |
|---|---|---|---|---|---|
| Description: | Practical assessment of laboratory based skills | | | | |

## MODULE PERFORMANCE DESCRIPTOR

### Explanatory Text

The first grade represents Component 1 (CW1) weighted as major and the second, Component 2 (CW2), weighted as minor. A minimum module grade of D is required for a pass, with compensation of grade E in Component 1 or Component 2 permitted. Non-submission of either component will result in an NS grade.

| Module Grade | Minimum Requirements to achieve Module Grade: |
|---|---|
| **A** | AA, AB |
| **B** | AC, AD, AE, BA, BB, BC, CA |
| **C** | BD, BE, CB, CC, CD, DA, DB |
| **D** | CE, DC, DD, DE, EA, EB, EC |
| **E** | AF, BF, CF, DF, ED, EE, EF, FA, FB, FC, FD |
| **F** | FE, FF |
| **NS** | Non-submission of work by published deadline or non-attendance for examination |

## Module Requirements

| | |
|---|---|
| Prerequisites for Module | None, in addition to course entry requirements. |
| Corequisites for module | None. |
| Precluded Modules | None. |

| Module Ref: | ASM040 v3 |
|---|---|

## INDICATIVE BIBLIOGRAPHY


| | |
|---|---|
| 1 | Aulton, M.E. (2017). 'Pharmaceutics - the design and manufacture of medicines', 5th edition, Churchill Livingstone, Elsevier. |
| 2 | Khar, R.K. (2017). 'Lachman's/Lieberman's: the theory and practice of industrial pharmacy', 4th edition, CBS Publishers. |
| 3 | Prichard, E. (2007). 'Quality assurance in analytical chemistry', Wiley. |
| 4 | Skoog, D.A., Holler, F.J., Crouch, S.R. (2018). 'Principles of instrumental analysis', 7th edition, Brookes Cole. |
| 5 | Watson, D.G. (2016) 'Pharmaceutical analysis - a textbook for pharmacy students and pharmaceutical chemists', 4th edition, Churchill Livingstone, Elsevier. |