

Title	Perform spectrophotometric analyses		
Level	5	Credits	3

Purpose	People credited with this unit standard are able to: describe spectrophotometric techniques; perform spectrophotometric analysis; construct a standard curve for spectrophotometric analysis, and interpret results from a spectrophotometric analysis.
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Classification	Science > Biochemistry
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Available grade	Achieved
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Guidance Information

- 1 All work must be carried out in accordance with the quality management system, documented protocol system or Standard Operating Procedures (SOP) typically acceptable in a commercial or research laboratory.
- 2 Health and Safety practices must conform to Australian/New Zealand Standard AS/NZS 2243 – *Safety in Laboratories* Parts 1, 2, 3, 7 and 10 available at <http://www.standards.co.nz> and <http://infostore.saiglobal.com/store>.
- 3 A sample will be provided for the candidate to analyse.
- 4 Glossary
Laboratory procedures refer to documented systems or processes of operation which may be found in a SOP manual, quality management system, or in protocol system documentation. These procedures are external and/or internal laboratory requirements governing laboratory work.

Outcomes and performance criteria

Outcome 1

Describe spectrophotometric techniques.

Performance criteria

- 1.1 Spectrophotometry is described in terms of the function of the system and the nature of the sample.

Range absorption, detection system, transmission, wavelength, light source.

- 1.2 Spectrophotometric data is explained in terms of the sample characteristics.
Range concentration, kinetics.

Outcome 2

Perform spectrophotometry analysis.

Performance criteria

- 2.1 Spectrophotometry is carried out in accordance with laboratory procedures.
- 2.2 Spectrophotometry readings are plotted and the curve is consistent with the sample.
- 2.3 Absorbance maxima are identified and absorbance co-efficients are calculated consistent with the plotted curve.

Outcome 3

Construct a standard curve for spectrophotometric analysis.

Performance criteria

- 3.1 Optimal wavelength selected is consistent with the absorbance spectrum of the sample.
- 3.2 Standard solutions are prepared to cover the concentration range of the unknown in accordance with laboratory procedures.
- 3.3 Absorbances of blanks and working standards are plotted to establish a standard curve consistent with Beer's Law.

Outcome 4

Interpret results from a spectrophotometric analysis.

Performance criteria

- 4.1 Unknown is determined consistent with the standard curve and absorbance reading.
- 4.2 Possible causes of any anomalous results are discussed and related to the technique used.

Planned review date	31 December 2023
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Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	22 December 1996	31 December 2014
Review	2	23 November 1999	31 December 2014
Review	3	17 September 2010	N/A
Rollover	4	27 January 2015	N/A
Review	5	27 September 2018	N/A

Consent and Moderation Requirements (CMR) reference

0113

This CMR can be accessed at <http://www.nzqa.govt.nz/framework/search/index.do>.

Comments on this unit standard

Please contact NZQA National Qualifications Services nqs@nzqa.govt.nz if you wish to suggest changes to the content of this unit standard.