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.

Classification	Science > Biochemistry

Available grade	Achieved

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.

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 Spectophotometric 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.

This unit standard is expiring. Assessment against the standard must take place by the last date for assessment set out below.

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	31 December 2025
Rollover	4	27 January 2015	31 December 2025
Review	5	27 September 2018	31 December 2025
Review	6	30 November 2023	31 December 2025

Consent and Moderation Requirements (CMR) reference	0113

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