

Title	Determine enzyme activity		
Level	5	Credits	4

Purpose	People credited with this unit standard are able to: determine the pH and temperature dependence of enzyme activity; calculate kinetic parameters for a one-substrate reaction; and determine enzyme activity in the presence of inhibitors.
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Classification	Science > Biochemistry
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Available grade	Achieved
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Guidance Information

- 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.
- 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>.
- Legislation applicable to this unit standard includes:
Health and Safety at Work Act 2015;
Hazardous Substances and New Organisms Act 1996.
- Recommended for entry: Unit 8043, *Perform spectrophotometric analyses*; and Unit 26487, *Explain the characteristics of enzymes*.

Outcomes and performance criteria

Outcome 1

Determine the pH and temperature dependence of enzyme activity.

Performance criteria

- Enzyme assays are performed and enzyme activity calculated to establish the optimum temperature for enzyme activity.
- Enzyme assays are performed and enzyme activity calculated to establish the optimum pH for enzyme activity.

Outcome 2

Calculate kinetic parameters for a one-substrate reaction.

Range Michaelis constant (Km), maximum velocity (V).

Performance criteria

2.1 Enzyme assays are performed and enzyme activity calculated to establish the effect of varying substrate concentrations on enzyme activity.

2.2 Results are manipulated and plotted to show enzyme kinetic information.

Range one of – non-reciprocal, single-reciprocal, double-reciprocal.

Outcome 3

Determine enzyme activity in the presence of inhibitors.

Range competitive, non-competitive.

Performance criteria

3.1 Enzyme assays are performed and enzyme activity calculated to establish the effect of inhibitors on enzyme activity.

3.2 Competitive and non-competitive inhibitors are compared using double-reciprocal plots in relation to the effects on enzyme activity.

Replacement information	This unit standard and unit standard 26487 replaced unit standard 8053.
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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	17 September 2010	N/A
Rollover	2	27 January 2015	N/A
Review	3	27 September 2018	N/A

Consent and Moderation Requirements (CMR) reference	0113
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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.