



CENTRE  
FOR HIGHER  
EDUCATION  
STUDIES

**Apply for CHES**

VCE subjects,  
HES courses and  
Year 10 electives at:  
[ches.vic.edu.au](http://ches.vic.edu.au)

CHES

**Address** 669 Chapel Street, South Yarra, Victoria  
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## PROSPECTUS

A bridge  
between  
schools and  
university

# Centre for Higher Education Studies (CHES)

CHES has been established to provide senior secondary students from across the state with opportunities for stretch, challenge and acceleration in their studies.

CHES enables you to access first year university-level studies, selected VCE subjects, or Year 10 enrichment electives. Through CHES, you can study a subject aligned to your skills and interests that may contribute to your ATAR, and potentially earn university credits, providing a head start on your undergraduate degree. These programs are available through a hybrid and flexible approach, with opportunities to study online, on-site at CHES, and at university campuses, regardless of where you live in Victoria.

## Studying a subject with CHES

Discuss with staff at your school if they think you would benefit from taking a subject through CHES as part of your VCE program or Year 10 program at your school, and then apply through our website.

The enrolment process, eligibility criteria and application timelines are published on: [www.ches.vic.edu.au](http://www.ches.vic.edu.au)

Through CHES you can meet other high-achieving students from across Victoria and establish new connections with students, CHES teachers and university academics, while maintaining your existing friendships at school. CHES provides a strong foundation for future university study.

## CHES subjects and courses

**Higher Education Studies:** In partnership with universities, CHES is a hub for Higher Education Studies (HES). These first-year university subjects are offered across a wide range of disciplines. HES can contribute ATAR points and potential university credits, while you are completing VCE at school. This offers a valuable head start on your university study.


**VCE studies:** CHES offers select VCE studies that tend to hold great appeal for high-ability students, providing significant breadth and stretch:

- Algorithmics Units 3 & 4
- Extended Investigation Units 3 & 4
- English Language Units 1 – 4
- Specialist Mathematics Units 1 – 4

**Year 10 enrichment electives:** To provide a solid foundation for future study of VCE Algorithmics, VCE Extended Investigation and VCE English Language, CHES also offers electives for Year 10 students. Each of these optional electives are one semester in length with the option to study them during the school day or outside school hours. Students can elect to study more than one of these electives:

- Research Matters
- Critical Thinking for Creative Minds
- Introduction to Algorithmics
- LingoLab: Unveiling the Wonders of Real-world Language



A photograph of two young women walking up a modern staircase. The staircase has light-colored wooden walls and railings. The woman on the left is wearing a white shirt and blue jeans, and the woman on the right is wearing a blue cardigan and dark pants. They are both smiling and looking at each other. The background shows a bright, modern interior with large windows and wooden paneling.

CHES is a centre of excellence for high-achieving and high-ability senior secondary students from across Victoria's government schools. We provide a range of Higher Education Studies in partnership with universities as well as select VCE studies and Year 10 enrichment electives.







## Hybrid and flexible learning options

CHES is a specialised provider for students in government schools and offers access for students across Victoria, including those in regional and rural areas. The CHES building is technology-rich enabling students to participate and engage in online learning through a virtual environment. Our classrooms feature state-of-the-art displays, mics, speakers and cameras that track who is speaking so that students who are learning on-site can interact with those who are learning online.

Students remain enrolled at their current school with their CHES subject included in their VCE program as per arrangements for students undertaking a VET subject or studying a VCE subject through Virtual School Victoria.

## Bridging school and university

CHES has established strong partnerships with universities to strengthen pathways into university. We are a combination of a tertiary learning environment with the structure and supports of a senior secondary school. Our programs enable students to accelerate and deepen their learning, experience university while still at school, and continue to build an impressive CV for the future.

Independent study and collaborative working groups are key features at CHES and our dedicated team of staff offer challenging programs and ongoing support and guidance. At CHES, students have opportunities to build positive relationships with staff and peers. We work closely with schools and universities to support a successful experience.

## Enrichment

Students who undertake a HES study or a VCE subject through CHES also have access to our Student Enrichment Series which includes masterclasses, special events and mentoring opportunities with a range of universities and industry leaders.

## Enrolment

There is no entrance test or exam for enrolment into a CHES program. The online application considers key information provided by your school including your academic achievements, as well as a statement to confirm your suitability to undertake a CHES program. Students initiate the application process through a simple online application form.

CHES encourages applications from students regardless of their location or background and will take into consideration extenuating or special circumstances.

Visit the CHES website for full details and updates on these programs, application processes, selection criteria and to register for upcoming information sessions and tours:

[www.ches.vic.edu.au](http://www.ches.vic.edu.au)



# Higher Education Studies

through CHES

Higher Education Studies (HES) are first-year university subjects that students can take as part of their overall VCE program. Through the Centre of Higher Education Studies (CHES) students can apply to study a HES in Year 12. There is selection process for enrolling in a HES but for students who meet the selection criteria, the HES will be free (no cost to students or schools).

CHES is proud  
to be partnering  
with the following  
Victorian  
universities:





## Benefits of studying a HES



Credit towards a university qualification



Full access to university systems, libraries, and resources



Academic challenge from an extension subject



When students successfully complete a HES, they will have the title of the study, the year of enrolment, and the university name reported on their VCE Statement of Results



Contribution towards completion of the VCE as a Unit 3-4 sequence, and a subsequent contribution towards the calculation of the ATAR via an increment for a fifth or sixth study

University staff (academics and tutors) teach and assess the courses. CHES staff provide ongoing support and guidance to students and work closely with the university and schools.

We encourage students to select courses based on their interests and strengths and preferred mode of study.

The time requirement for each HES is equivalent to the time allocation for a standard VCE study. Classes are available during and outside the normal school hours to minimise clashes with other VCE classes and to enable high-achieving students from across Victoria to fully participate. The timetable is confirmed by the university at the start of the academic year. Some subjects may require online attendance during school hours but most will run their tutorials outside of school hours (usually one afternoon each week) to maximise participation.

For most HES courses, the first semester typically runs from the end of February to the end of May with an extended mid-semester break, followed by the second semester which runs from the end of July to the end of October.

The Higher Education Studies require students to either have already completed a VCE subject (a prerequisite) or to be undertaking a specific VCE subject while completing the HES (a co-requisite).

The full list of Higher Education Studies is available on the CHES website together with the eligibility criteria, prerequisites/co-requisites, attendance requirements, enrolment timelines, and upcoming information sessions: [www.ches.vic.edu.au](http://www.ches.vic.edu.au)







# VCE Studies

At CHES we specialise in four highly regarded VCE studies of great appeal to senior students who cannot access these subjects at their base school:

<b>Algorithmics</b>	<b>Units 3 &amp; 4</b>
<b>Extended Investigation</b>	<b>Units 3 &amp; 4</b>
<b>English Language</b>	<b>Units 1 – 4</b>
<b>Specialist Mathematics</b>	<b>Units 1 – 4</b>

We are proud to offer these VCE subjects to high-achieving students in government schools across Victoria, including students in metropolitan, rural, regional, and remote areas and those from disadvantaged backgrounds. We're expanding access to these subjects to an even more diverse group of students than ever before. Through our innovative 'hy-flex' approach to teaching and learning, students remain enrolled at their school and undertake a VCE study through CHES, as a part of their overall VCE program. To accommodate as many eligible students as possible, our subjects are available through a hybrid and flexible approach, with opportunities to study online and on-site at CHES.

Our cornerstone belief at CHES is that high-ability students can flourish and realise their potential through the opportunities we offer to extend, deepen and accelerate their learning.

We warmly welcome applications to enrol in a VCE subject with us through our website.



# Algorithmics

## Units 3 & 4

**Algorithmics is a Higher Education Scored Study, considered to be the equivalent of a first-year university subject. Students can attain a VCE study score for Algorithmics with some universities offering accelerated pathways and credits for successful completion.**

Algorithmics provides a structured framework for solving real-world, practical problems with computational methods. It is fundamental to computer science and software engineering and is essential for understanding the technical underpinnings of our information society. Further, it provides a methodical way to approach complex problem-solving in STEM (Science, Technology, Engineering and Mathematics) and other disciplines that benefit from analytical problem-solving and formal reasoning. Computing is central to our society and economy and drives innovation across many fields of human endeavour.

Algorithmics examines how information about the world can be systematically represented and how the processes can be made precise enough to be implemented in a computer program. The focus is not on coding but on 'algorithmic thinking'. Algorithmics covers systematic methods for analysing real-world problems and identifying the key aspects that need to be modelled to find a solution.

Algorithmics also covers deeper topics in computer science such as artificial intelligence, statistical methods of computation, and ethical issues related to these topics. This investigation of theoretical topics is complemented by the development of skills in a high-level programming language.

### Structure

The study is made up of two units which must be taken in a sequence:

- Unit 3 Algorithmic problem solving
- Unit 4 Principles of algorithmics

### Prerequisites

Algorithmics is only available as a Unit 3 & 4 sequence. Students must be currently enrolled in or have already successfully completed VCE Mathematical Methods Units 1 & 2 in order to enrol in Algorithmics Unit 3 & 4. Students can apply to study Algorithmics in Year 11 or Year 12. Some basic coding experience may be beneficial.

### Course content

#### Unit 3: Algorithmic problem-solving

This unit focuses on how algorithms are used for solving complex problems.

**Area of Study 1** - students develop and apply a range of knowledge and skills to model real-world information problems.

**Area of Study 2** - students learn how to design algorithms following a variety of simple algorithm design patterns and learn to graph algorithms.

**Area of Study 3** - students apply the understanding developed in Areas of Study 1 and 2 to design a solution for a real-world problem that includes both a data representation and algorithm design.

#### Unit 4: The principles of algorithms

This unit focuses on the performance of algorithms and the scope and limitations of algorithms.

**Area of Study 1** - students study the efficiency of algorithms and techniques for the formal analysis of algorithms and learn to apply these techniques.

**Area of Study 2** - students learn about a variety of more sophisticated algorithm design patterns and apply their knowledge of these to construct an improved solution for the problem solved in Unit 3.

**Area of Study 3** - students learn about modern data-driven computation and the existence of hard limits of computability.

### Assessment

Unit 3 School Assessed Coursework	12%
Unit 4 School Assessed Coursework	8%
Unit 3 & 4 School Assessed Task	20%
November Exam	60%

### Pathways

Algorithmics provides students with an understanding of skills necessary to succeed in careers that involve Computer Science and Software Engineering.

# Extended Investigation

## Units 3 & 4

This subject is designed for students who want to challenge the boundaries of their learning, have an inquiring mind, and who can learn to become self-motivated. Extended Investigation allows students to conduct rigorous research in a topic of their choice, enabling them to control the content studied.

Students have to learn how to create and frame a robust research question in the academic area of their own choosing. They then develop an ethical, disciplined and rational approach to gathering, interpreting and evaluating evidence in order to answer this research question. Students are introduced to a broad range of research methods and explore their comparative suitability for the investigation of particular questions.

### This study enables students to:

- develop and construct a rigorous research question
- understand and realise how to apply research methods
- explore in-depth a chosen area of investigation
- develop as independent, critical and reflective learners
- develop research project management knowledge
- analyse and evaluate findings and results
- develop skills in written and oral presentation
- become competent and perceptive critical thinkers

### Structure

- |        |   |
|--------|---|
| Unit 3 | Designing a research question<br>planning and starting the investigation<br>critical thinking |
| Unit 4 | Presenting the final research report<br>defending research findings                           |

### Prerequisites

There are no prerequisites for entry into this subject. The subject can be studied in Year 11 or Year 12 as there is no Unit 1 and 2 sequence. Strong literacy skills are required to access and utilise academic resources and writing conventions.

### Course content

Unit 3: Designing an extended investigation

In this unit students develop skills in question construction and design, explore the nature and purpose of research and research methodologies, critically review research literature, and identify a specific research question.

**Area of Study 1** - Students devise a research question that is of significance and requires a detailed inquiry.

**Area of Study 2** - Students learn about the practical components of planning and undertaking research, methods of research and principles of project management.

**Area of Study 3** - Students develop and apply the skills of critical thinking, including considering how arguments are constructed.

Unit 4: Presenting an extended investigation

This unit is comprised of two parts that together constitute the student's completion of their investigation. The results of the investigation are presented in a final written report and in an oral presentation.

**Area of Study 1** - Students complete their investigation and write the final report that provides their response to the research question for an education, non-specialist audience.

**Area of Study 2** - Students explain their investigation, critically evaluate their research process and defend their findings in a presentation to an educated, non-specialist audience.

### Assessment

There is no written examination in this subject and the Study Score is awarded based on coursework, a Critical Thinking Test, a 4000 word written report and an oral presentation.

Unit 3	School-Assessed Coursework	30%
	Written Plan and Oral Presentation	
Unit 3	Externally-Assessed	10%
	Critical Thinking Test	
	Online Test	
Unit 4	Externally-Assessed Task	60%
	Written Report and Oral Presentation	

### Pathways

The skills and competencies that students develop in Extended Investigation are easily transferable to any higher education subject or vocational education and training program.



# English Language

## Units 1 - 4

English Language explores the ways in which language is used by individuals and groups and how it reflects our thinking and values. By learning about how we shape and can be shaped by our use of language, we can develop deeper understandings about ourselves, those who surround us and the society in which we live. These understandings enhance the skills for effective communication in all contexts.

English Language explores how we use spoken and written English to communicate, to think and innovate, to construct and reveal identities, to build and interrogate attitudes and assumptions, and to create and disrupt social cohesion.

### Structure

This study is made up of four units. Units 3 & 4 must be taken as a sequence. It is strongly recommended that Units 1 & 2 are completed before commencing Units 3 & 4.

Unit 1	Language and communication
Unit 2	Language change
Unit 3	Language variation and purpose
Unit 4	Language variation and identity

### Prerequisites

There are no prerequisites for entry to Units 1 & 2. It is **strongly recommended** that students have completed Units 1 & 2 prior to commencing Units 3 & 4.

Students are **strongly encouraged** to only enrol in English Language through CHES if they are completing another English subject (English or Literature) in their base school. Students will only be permitted to enrol in English Language at CHES with the full support of their base school.

### Course content

#### Unit 1: Language and communication

This unit focuses on the nature of language as a system of signs and conventions. Students will learn to identify and describe primary aspects of the nature and functions of human language and investigate types of language acquisition in the context of linguistic theories.

#### Unit 2: Language change

This unit focuses on exploring texts and considers how language changes affects the subsystems of language. Students will learn to identify and describe the effects of language change on the English language and explain the effects of the global spread of English through spoken and written texts.

#### Unit 3: Language variation and purpose

Students will learn to identify, describe and analyse features of formal and informal language in written and spoken texts.

#### Unit 4: Language variation and identity

Students will learn to identify, describe and analyse varieties of English in Australian society, attitudes towards them and the identities they reflect. They will also study variation in language, linguistic repertoires and language choice and how this reflects and conveys people's identities.

### Assessment

#### Units 1 & 2:

Assessment tasks will be set and marked by the teacher. Overall unit outcomes (S/N) are reported to the VCAA.

#### Unit 3 & 4:

Unit 3 School Assessed Coursework	25%
Unit 4 School Assessed Coursework	25%
November Exam	50%

### Pathways

The study supports language-related fields such as psychology, the study of other languages, speech and reading therapy, journalism and philosophy. It also supports study and employment in other communication-related fields, including designing information and communications technology solutions or programs.

# Specialist Mathematics

## Units 1 – 4

Mathematics is both a framework for thinking and a means of symbolic communication that is powerful, logical, concise and precise. Mathematics also provides a means by which people can understand and manage human and natural aspects of the world and interrelationships between these.

**Specialist Mathematics Units 1–4** provide for the study of various mathematical structures, reasoning and proof. They also provide background for advanced studies in mathematics and other STEM fields.

### Structure

This study is made up of four units. Units 3 & 4 must be taken as a sequence. Students undertaking Specialist Mathematics must also complete the equivalent units of Mathematical Methods, either concurrently or in the year prior to commencing study.

Unit 1	Algebra, number and structure, Discrete mathematics and Mathematical investigation
Unit 2	Data analysis, probability and statistics, Space and Measurement, Algebra, number and structure, Functions, relations and graphs and Mathematical investigation
Units 3 & 4	Discrete mathematics, Functions, relations and graphs, Algebra, number and structure, Calculus, Space and measurement, Data analysis, probability and statistics

### Prerequisites

Students completing Units 1 & 2 Specialist Mathematics must be completing concurrently, or will have already completed, Units 1 & 2 Mathematical Methods.

Students completing Units 3 & 4 Specialist Mathematics must be completing concurrently, or will have already completed, Units 3 & 4 Mathematical Methods.

It is **strongly recommended** students complete Units 1 & 2 Specialist Mathematics before commencing Units 3 & 4.

Students will only be permitted to enrol in Specialist Mathematics at CHES if the subject is not offered or run in their base school.

### Course Content

On the completion of each unit students will be required to demonstrate achievement in outcomes that encompass all areas of study in the unit.

#### Outcome 1

Students are able to define and explain key concepts and apply a range of related mathematical routines and procedures

#### Outcome 2

Students are able to apply mathematical processes in non-routine contexts, including situations with some open-ended aspects, and analyse and discuss these applications of mathematics

#### Outcome 3

Students are able to apply computational thinking and use numerical, graphical, symbolic and statistical functionalities of technology to develop mathematical ideas, produce results and carry out analysis.

### Assessment

#### Units 1 & 2:

Assessment tasks will be set and marked by the teacher. Overall unit outcomes (S/N) are reported to the VCAA.

#### Unit 3 & 4:

Unit 3 School Assessed Coursework	25%
Unit 4 School Assessed Coursework	25%
November Exam 1	20%
November Exam 2	40%

### Pathways

Specialist Mathematics provides a background for further study in mathematics, science, engineering, commerce and information technology.





## Year 10 Enrichment Electives

CHES offers four electives to high-ability Year 10 students across the state. Students can choose to study one or more of these electives with us. There are no prerequisites for these electives but students should have strong literacy and/or numeracy skills. Acceptance of enrolment requires principal endorsement and applications will be accepted on a first-come, first-served basis.

<b>Research Matters</b>	Foundations of VCE Extended Investigation
<b>Critical Thinking for Creative Minds</b>	Foundations of VCE Extended Investigation
<b>Introduction to Algorithmics</b>	Foundations of VCE Algorithmics
<b>LingoLab: Unveiling the Wonders of Real-world Language</b>	Foundations of VCE English Language

We offer these four electives to students in Year 10 to prepare them for future study of VCE Algorithmics, VCE Extended Investigation, or VCE English Language. We aim to extend students who are interested in these foundations of successful university study through research, linguistics, critical thinking, and computational thinking.

The electives are one semester in length with flexible study options and they are not intended to replace electives that students may be taking at their base school in Year 10. Instead they provide enrichment and extension beyond the school curriculum. Students will be expected to complete 2 or 3 hours of hy-flex learning each week for the 15-week semester, including one designated online 60-minute live lesson each week.

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## Research Matters

This subject gives students the opportunity to develop their knowledge and understanding of what it means to research and complete their own independent investigation into an area of their choice. Students will be taught how to navigate the wealth of information available to them, critically evaluating the resources, methods and ideas found, and applying these skills to their own research. Students will develop their own research question, test and evaluate research methods, collect primary evidence and present their findings in an exhibition and research journal.

**Time requirement:** 1 live lesson and 1 optional tutorial.

### Assessment

Students will be assessed on their research journal, completed throughout the semester and their presentation of research at the CHES Expo.

### Pathways

This subject aligns with the Victorian Curriculum Critical and Creative Thinking standards. It will prepare students for Extended Investigation Units 3 & 4.

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## Critical Thinking for Creative Minds

This subject will allow students to develop their critical thinking skills in the context of contemporary issues on a local, national and global scale. Students will learn how to construct strong arguments, apply logic and reasoning to solve problems, and evaluate sources effectively. Students will participate in both informal and formal debates to engage in active listening, as well as presenting their own positions on topics. Reflecting on their own thinking (meta cognition) and how they can apply strategies to other learning areas will be explicitly taught throughout the course.

Students will learn how to ask the 'right' questions, understand and construct different types of arguments and apply strategies to solve problems.

**Time requirement:** 1 live lesson and 1 optional tutorial.

### Assessment

Students will be assessed on their responses to Critical Thinking questions and presentation of impromptu and prepared speeches.

### Pathways

This subject aligns with the Victorian Curriculum Critical and Creative Thinking standards. It will prepare students for Extended Investigation Units 3 & 4.

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## Introduction to Algorithmics

This subject will allow students to develop their computational and analytical thinking skills, engage with solving problems using pseudocode (including an introduction to using Python for coding). Students will learn how to solve real world problems using computational methods and about different types of Abstract Data Types.

Students will create individual and group Algorithm Design Projects.

**Time requirement:** 1 live lesson and 1 optional tutorial.

### Assessment

Students will be assessed on their responses to their individual and group projects.

### Pathways

This subject aligns with the Victorian Curriculum Digital Technologies standards. It will prepare students for Algorithmics Units 3 & 4.

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## LingoLab: Unveiling the Wonders of Real-world Language

This subject is designed for students who want to know how language works in real life. Language communicates our emotions and ideas in everyday settings, not just in books and films. Therefore, our studies will focus on all things language related, from sounds to sentences, words to vocal effects, and everything in between. Using the English Language as a lens, students will also explore how language is used for creative endeavours and how its use online has promoted further linguistic change.

**Time requirement:** 1 live lesson and 1 optional tutorial.

### Structure

Students will learn about the metalinguistic tools linguists use to analyse language, write analytically and apply language features to their own creative writing.

### Assessment

Students will be assessed on their analysis of language in a folio of textual annotations completed throughout the elective and discussion of language.

### Pathways

This subject aligns with the Victorian Curriculum English standards. It will prepare students for VCE English Language.