Version 26-10
Course

Terms Index

Course Fundamentals

Breadth / Distribution Requirement	**Capstone Course**	**Class Section**	**Core Courses**
Course	**Course Catalog / Course Handbook**	**Course Load / Academic Workload**	**Course Objectives**
Credit	**Curriculum**	**Degree / Award**	**Elective Courses**
Foundational Course	**Independent Study / Directed Study**	**Module**	**Practicum / Internship / Work-Integrated Learning (WIL)**
Prerequisite Course	**Corequisite Course**	**Program / Programme**	**Syllabus**
Topic	**Transfer Credit / Recognition of Prior Learning (RPL)**		

1. Course Feedback Form

Definition

A course is a self-contained, credit-bearing curricular unit that organizes a coherent body of computing knowledge, skills, practices, and professional dispositions into an assessable learning experience over a defined period of time. A course may address a single subject area or integrate topics drawn from multiple computing knowledge areas, and it is normally specified by its catalog description, credit value, prerequisites, learning outcomes, major topics, and methods of assessment. In computing curricula, a course serves as one mechanism for packaging knowledge units and competencies into a form suitable for instruction, practice, and evaluation. The term is sometimes used informally to describe a particular scheduled offering of the course to students; more precisely, that offering is a class section or course section [1].

Alternative Terms

- Module – UK, Ireland, Australia, NZ, Continental Europe, (Bologna-aligned systems) South Asia, Southeast Asia - The standard term for a single unit of study within a degree program [1], [2].

- Subject – India, South Asia, parts of Southeast Asia - Used in university and school contexts to refer to a single course or unit of study [3],[4].
- Paper – India, NZ, South Africa, some Commonwealth countries -- Used in university catalogues to denote an individual examined unit [4].
- Course unit – used in ECTS/European higher education.
- Unit – common in Australia and some Commonwealth systems, e.g., Kenya [3], [1].
- Class – common informal North American usage, but less precise because it may mean either the course or a scheduled meeting/section [5].
- Educational component – used in ECTS-style documentation, but broader than course because it can include placements, projects, theses, etc. [2]
- Curricular unit – useful neutral glossary language, though more formal than everyday institutional usage [3].

Regional Variations

- **UK / Ireland / Australia / NZ / South Asia / Southeast Asia / Kenya / Oceania / Latin America:** The term 'course' commonly refers to an entire degree program (e.g., 'I am enrolled in a Computer Science course') rather than a single unit of study. [6]
- **North America / Continental Europe / East Asia / Middle East / Africa / Russia:** The term 'course' refers to a single unit of instruction within a degree program.
- **Colloquial (global):** 'Course' is sometimes used informally to mean 'class section' — the specific scheduled instance of a course delivered to a group of students during a particular term or semester.
- **India:** Traditionally, Indian universities followed the British model where a "Course" referred to the entire multi-year degree (e.g., “The B.A. Course”). Individual components within that degree were historically called "Papers" or "Subjects." National Institutes like IITs, IIMs, NITs, began adopting "Program" to align with the US/Global standard to make their transcripts "readable" to the world. The formal shift occurred in 2015 when the University Grants Commission (UGC) introduced the Choice Based Credit System (CBCS). To align India with global academic standards (such as the US system and the Bologna Process), the terminology was standardized

- Seoul Accord [7] and Washington Accord [8]:
  In the Seoul Accord and Washington Accord, *course* may mean an entire academic qualification or programme that prepares graduates for entry into a computing profession. The Seoul Accord mainly uses *program*, but explicitly notes that other systems may use terms such as *course* for the same concept. In this meaning, a course is not a single instructional unit; it is closer to a whole degree programme or accredited computing qualification.
- Australian government / TEQSA context [9]:
  In Australian higher education regulation, *course of study* means a full award-bearing programme, such as a bachelor’s, master’s, graduate diploma, or other higher education award. This differs from the narrower meaning of *course* as a single credit-bearing curricular unit. The smaller instructional component is more often called a *unit of study*.
- Computing education / MOOC context (e.g., [10]): A course may not be credit-bearing.

Comparative Notes

A course is a self-contained, credit-bearing unit of instruction that delivers and assesses academic content over a defined period. It may cover a single subject or combine multiple knowledge areas. While “course” formally refers to the curricular unit itself, it is often used informally to describe a specific scheduled offering, more accurately called a class section. Terminology varies internationally. Common equivalents include module (UK and many Commonwealth systems), subject, and paper. In regions such as the UK, Australia, and parts of Asia and Latin America, “course” may also refer to an entire degree program, whereas in North America and many other regions it usually means a single unit within a program.

Sources

1. Australian Qualifications Framework Council. (2013). *AQF glossary of terminology*. https://www.aqf.edu.au/download/414/aqf-glossary/8/aqf-glossary/pdf [verified]
2. European Commission. (2015). *ECTS Users’ Guide 2015*. Publications Office of the European Union. https://ehea.info/media.ehea.info/file/ECTS_Guide/00/0/ects-users-guide-2015_614000.pdf [verified]
3. Australian Government TCSI Support. (n.d.). *Unit of study*. https://www.tcsisupport.gov.au/node/8037 [verified]
4. New Zealand Ministry of Education. (n.d.). *Education Counts glossary*. https://www.educationcounts.govt.nz/site-info/glossary-filter [verified]
5. Common Education Data Standards. (n.d.). *CEDS data model: Domains and entities*. https://ceds.ed.gov/dataModelEntities.aspx [verified]
6. QAA. (n.d.). *Glossary of terms*. https://www.qaa.ac.uk/docs/qaas/about-us/qaa-glossary.pdf [verified]
7. Seoul Accord. (n.d.). *Section D: Graduate Attributes*. https://seoulaccord.org/document.php?id=79 [verified]
8. International Engineering Alliance. (n.d.). *Washington Accord*. Retrieved May 18, 2026, from https://www.internationalengineeringalliance.org/accords/washington-accord [verified]
9. Tertiary Education Quality and Standards Agency. (2017). Guidance note: Course design, including learning outcomes and assessment. https://www.teqsa.gov.au/guides-resources/resources/guidance-notes/guidance-note-course-design-including-learning-outcomes-and-assessment [verified]
10. Pascal Van Hentenryck and Carleton Coffrin. 2014. Teaching creative problem solving in a MOOC. In Proceedings of the 45th ACM technical symposium on Computer science education (SIGCSE '14). Association for Computing Machinery, New York, NY, USA, 677–682. https://doi.org/10.1145/2538862.2538913. [verified]

2. Module - Competency-Based or Stackable Learning Feedback Form

Definition

Competency-Based or Stackable Learning Module - Refers to a self-contained, bite-sized learning unit focused on a discrete, measurable skill. Rather than following a traditional semester timeline, these modules are completed asynchronously or on-demand, yielding micro-credentials, technical badges, or professional certifications. In a Competency-Based Education (CBE) framework, these independent units are "stackable," enabling learners to

systematically accumulate and combine them to satisfy the requirements of comprehensive, industry-recognized certifications or degrees

In computing education, stackable learning modules are increasingly aligned with competency frameworks, industry skills, and lifelong learning pathways, complementing traditional credit-bearing curricula. The term refers to the learning unit itself, not to the credential awarded upon completion [3], [5], [6].

Alternative Terms

- Micro-credential / Badge – Global, professional IT & higher education - Used interchangeably with competency-based modules to emphasize the modern, verifiable digital token earned upon completing a short, skills-focused unit [5], [6].
- Short Course / Certificate Unit – Online & Continuing Education - Terms used by professional development bodies to describe non-credit bearing, standalone modules intended for workforce upskilling [1], [2].

Regional Variations

- **United States and Canada -** Stackable credentials are widely associated with Competency-Based Education (CBE), workforce development, community colleges, and employer-recognized certifications. Learning modules are commonly aligned with measurable competencies and may accumulate toward certificates or degrees [5], [6].
- **European Higher Education Area (EHEA) -** Universities generally organize curricula around ECTS credit-bearing modules. While stackable micro-credentials are increasingly promoted through European policy initiatives, competency-based modules are typically integrated within formal qualification frameworks rather than existing independently [1], [2].
- **Australia and New Zealand -** The terms **micro-credential**, **short course**, and **stackable credential** are widely used in higher education and lifelong learning initiatives. Institutions increasingly design competency-based modules that may articulate into postgraduate certificates or degree programmes [5].
- **Professional Computing Education (global) -** Vendor certifications (e.g., cloud computing, cybersecurity, networking) commonly employ competency-based modules leading to digital badges or professional certifications rather than academic credit [3], [5].

Comparative Notes

Module is a term used in three different contexts - in curricula and Learning Management Systems; as stackable credentials usable towards a certificate or degree; and as a non-credit bearing unit of online / continuing education [4].

These meanings overlap in practice but differ in assessment, credentialing, and curricular role. Not every short course is competency-based, and not every competency-based module is stackable toward an academic qualification. Likewise, a **micro-credential** is the credential awarded after successful completion of a module, whereas the **module** refers to the instructional unit itself. Distinguishing between the learning unit and the resulting credential improves conceptual clarity in computing education literature [2], [5], [6].

Sources

1. *Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG). (2015). Brussels, Belgium.* https://www.eqar.eu/assets/uploads/2018/04/ESG_2015.pdf [verified]
2. *European Commission. (2015). ECTS Users' Guide. Publications Office of the European Union.* *https://op.europa.eu/en/publication-detail/-/publication/da7467e6-8450-11e5-b8b7-01aa75ed71a1* [verified]
3. Amruth N. Kumar, Rajendra K. Raj, Sherif G. Aly, Monica D. Anderson, Brett A. Becker, Richard L. Blumenthal, Eric Eaton, Susan L. Epstein, Michael Goldweber, Pankaj Jalote, Douglas Lea, Michael Oudshoorn, Marcelo Pias, Susan Reiser, Christian Servin, Rahul Simha, Titus Winters, and Qiao Xiang. 2024. Computer Science Curricula 2023. Association for Computing Machinery, New York, NY, USA. [verified]
4. *Glossary - Modules, Credit Points, ECTS, https://www.uni-marburg.de/en/fb12/studying/modules-and-courses/glossary* [verified]
5. Raj, R. K., Sabin, M., Impagliazzo, J., Bowers, D., Daniels, M., Hermans, F., et al. (2021). **Professional Competencies in Computing Education: Pedagogies and Assessment.** *Proceedings of the 2021 Working Group Reports on Innovation and Technology in Computer Science Education (ITiCSE-WGR '21)*, 133–161. ACM. https://doi.org/10.1145/3502870.3506570 [verified]
6. Raj, R. K., Sabin, M., Impagliazzo, J., Bowers, D., Daniels, M., Hermans, F., et al. (2021). **Toward Practical Computing Competencies.** *Proceedings of the 26th ACM Conference on Innovation and Technology in Computer Science Education (ITiCSE '21 Companion)*. ACM. https://doi.org/10.1145/3456565.3461442 [verified]

4. Module - Online / Continuing Education Feedback Form

Definition

Commonly describes a discrete section of an online course or professional development program in the online and continuing education contexts, without any formal credit-bearing status [1], [2].

Alternative Terms

- Learning Module / Online Module: Used extensively within Learning Management Systems (LMS) to designate a structural unit within a broader learning pathway [3].
- Micro-credential Unit: Increasingly favored when the non-credit module is formally evaluated, quality-assured, and paired with digital validation like a badge [5].
- Short Learning Programme (SLP) Component: A term often utilized in policy contexts to define highly granular, non-formal technical training components [6].
- Nanodegree Unit / Skill Badge Course: Used in corporate-led computing education ecosystems (e.g., Udacity, Coursera, IBM) to denote independent skill blocks [6].

Regional Variations

- European Higher Education Area (EHEA): Under the European Credit Transfer and Accumulation System (ECTS), a "module" traditionally refers to a formal, credit-bearing building block of a curriculum [1], [2], [4]. However, to accommodate lifelong learning, European frameworks have shifted to recognize non-credit or micro-credit

modules as "micro-credentials," ensuring they adhere to rigorous institutional quality assurance guidelines so they can potentially be integrated into standard university programs later [2], [5].

- United States and Canada: The phrase "module" in professional and continuing computing education is commonly interpreted as a sub-component of a non-credit certificate or a standalone, short-term corporate training block [3], [6]. These modules are measured via Continuing Education Units (CEUs) or hours of engagement rather than traditional academic credits [6].
- Asia-Pacific (e.g., Singapore, Australia): Online computing modules are treated as flexible, stackable skill courses designed for swift workplace adaptation. Universities routinely offer these modules as part of "Continuing Education and Training" (CET) to upskill the tech workforce rapidly [7].

Comparative Notes

Module is a term used in three different contexts - in curricula and Learning Management Systems; as stackable credentials usable towards a certificate or degree; and as a non-credit bearing unit of online / continuing education.

While formal academic modules are anchored strictly in state-regulated credit values (such as ECTS or standard credit hours) [1], [2], online/continuing education modules emphasize agile, competency-based outcomes designed to bridge immediate industry skill gaps [5], [6].

Sources

1. *Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG). (2015). Brussels, Belgium.* [verified]
2. *European Commission. (2015). ECTS Users' Guide. Publications Office of the European Union.* *https://op.europa.eu/en/publication-detail/-/publication/da7467e6-8450-11e5-b8b7-01aa75ed71a1* [verified]
3. Amruth N. Kumar, Rajendra K. Raj, Sherif G. Aly, Monica D. Anderson, Brett A. Becker, Richard L. Blumenthal, Eric Eaton, Susan L. Epstein, Michael Goldweber, Pankaj Jalote, Douglas Lea, Michael Oudshoorn, Marcelo Pias, Susan Reiser, Christian Servin, Rahul Simha, Titus Winters, and Qiao Xiang. 2024. Computer Science Curricula 2023. Association for Computing Machinery, New York, NY, USA. [verified]
4. *Glossary - Modules, Credit Points, ECTS,* *https://www.uni-marburg.de/en/fb12/studying/modules-and-courses/glossary* [verified]
5. Radovanović, M., & Radovanović, D. (2025). The role of micro-credentials in the future digitalized AI-driven education. *International Journal of Educational Technology in Higher Education*, 22(1), 45–61. [verified]
6. Casadesus, M., Smith, J., & Al-Hussain, M. (2025). Micro-credentials: What, why and whereto. *Management, Education & Innovation Review*, 2(1), 12–29. https://iiari.org/wp-content/uploads/meir.v2.25.2873.pdf [verified]
7. Academy for Professional and Continuing Education (PACE). (2025). Pedagogical Approaches for Tech Education. Nanyang Technological University, Singapore. https://www.ntu.edu.sg/pace [verified]

5. Topic Feedback Form

Definition

A topic is a single, distinct concept within a course. Topics are the individual content elements that, taken together, define the academic scope of a course and provide the basis for lesson planning, assessment design, and alignment between course content and program-level outcomes. In the ACM/IEEE-CS/AAAI Computer Science Curricula (CS2023), related topics, along with associated learning outcomes are organised within Knowledge Units, and Knowledge Units are in turn organized as Knowledge Areas [1].

Alternative Terms

- Category of subjects - US, Europe - The papers are classified on the same or related topics in the ACM Digital Library [2]
- Chapter - Asia, Middle East — (textbook-driven curricula) - Topics are often organized as textbook chapters in fixed national curricula. [4]
- Theme - UK, Europe - Used in some course outlines to describe broader groupings of related content. In UK computing education usage, “theme” is sometimes used for a curricular content category or strand: a named area of knowledge, concepts, skills, and associated learning outcomes. This overlaps with, but may be broader than, the CS2023 use of “topic.” [3]

Regional Variations

- **Asia / Middle East:** In nationally standardized curricula, 'topic' may refer to a prescribed syllabus item mandated by a ministry or national academic council, with limited instructor discretion over content.
- **General usage:** 'Topic' sometimes refers to a broad subject area of Computer Science (e.g., 'AI is an important topic'), distinct from its technical meaning as a specific knowledge unit within a course.

Comparative Notes

The variation of ‘topic’ lies in scope and authority: at one end of the spectrum, a topic is a flexible content element selected by the instructor (typical in North American and many European universities); at the other, it is a fixed item on a centrally mandated syllabus that the instructor is required to cover (typical in India, China, parts of the Middle East, and many national K–12 systems). When using 'topic' for comparative research, the granularity (multi-week module vs. one-hour treatment) and the authority structure (instructor-selected vs. ministry-mandated) both matter and should be made explicit.

Sources

1. Amruth N. Kumar, Rajendra K. Raj, Sherif G. Aly, Monica D. Anderson, Brett A. Becker, Richard L. Blumenthal, Eric Eaton, Susan L. Epstein, Michael Goldweber, Pankaj Jalote, Douglas Lea, Michael Oudshoorn, Marcelo Pias, Susan Reiser, Christian Servin, Rahul Simha, Titus Winters, and Qiao Xiang. 2024. Computer Science Curricula 2023. Association for Computing Machinery, New York, NY, USA. [verified]
2. *ACM Computing Classification System* https://www.acm.org/binaries/content/assets/publications/article-templates/ccs-howto-v6-12jan2015.pdf [verified]

3. Quality Assurance Agency for Higher Education. (2022). Subject benchmark statement: Computing. https://www.qaa.ac.uk/docs/qaa/sbs/sbs-computing-22.pdf [verified]
4. All India Council for Technical Education. (2022). Model curriculum for undergraduate degree courses in computer science and engineering. https://fliphtml5.com/jfjx/bflz/Updated-AICTE_-_UG_CSE_Curriculum_2022_%281%29/ [verified]

---

6. Learning Outcome Feedback Form

Definition

A learning outcome is a clear, measurable statement describing what a student should be able to know, understand, or do upon completing a course or program. Learning outcomes are student-centered and serve as the basis for instructional design, assessment alignment, and evaluation of educational effectiveness. Learning outcomes typically use active verbs aligned with a taxonomy of cognitive (and sometimes affective and psychomotor) levels such as Bloom's taxonomy [1]. Learning outcomes operate at multiple levels — program-level (sometimes called graduate attributes or program outcomes), course-level, and topic-level — and are required elements in module/course descriptors under most contemporary quality-assurance frameworks [3, 4]. In computing, learning outcomes connect course content and assessment to program outcomes, competencies, graduate attributes, and accreditation evidence [2, 3].

Alternative Terms

- Intended learning outcome (ILO) – UK, Europe, Australia - The preferred term in many quality-assurance frameworks, emphasizing that the outcome is planned rather than guaranteed. [5]
- Expected learning outcome (ELO) – European Higher Education Area / Bologna Process - Used in ECTS-based course descriptions. [5]
- Graduate attribute – Australia, some Commonwealth countries - Used at the program level to describe the competencies graduates are expected to demonstrate.[4]
- **Course Outcomes** - Learning outcomes applied to an entire course
- **Program Outcomes** - Learning outcomes applied to an entire degree program
- **Course goal / Learning goal** — broad, big-picture statements of what a course aims to achieve. General objectives, also called course goals or learning goals, are broad statements of what a course or program aims to achieve, in contrast to specific, observable objectives. [6]
-

Regional Variations

-

Comparative Notes

This is the principal way a learning objective is distinguished from a learning outcome: the outcome states what the *student* will be able to do and is, by definition, measurable and assessable, whereas the objective states what the *course* sets out to do and need not be. Learning outcomes are framed from the learner's perspective—what the student will take away—while instructional objectives are written from the instructor's perspective—what the instructor intends to cover. In practice the two terms are frequently used interchangeably, and the objective/outcome boundary is treated more sharply in some quality-assurance and accreditation frameworks than in everyday institutional usage.

Sources

1. *Bloom, B. S. (1956). Taxonomy of Educational Objectives: The Classification of Educational Goals. Longmans Green.* [verified]
2. *European Commission. (2015). ECTS Users' Guide. Publications Office of the European Union https://op.europa.eu/en/publication-detail/-/publication/da7467e6-8450-11e5-b8b7-01aa75ed71a1* [verified]
3. ABET. (2025). Criteria for Accrediting Computing Programs, 2025-2026. https://www.abet.org/accreditation/accreditation-criteria/criteria-for-accrediting-computing-programs-2025-2026/ [verified]
4. Seoul Accord. (2016). Section D: Graduate Attributes. https://seoulaccord.org/document.php?id=79 [verified]
5. Learning Outcomes: An International Perspective, National Council for Curriculum and Assessment (NCCA) https://ncca.ie/media/3958/learning-outcomes-an-international-perspective.pdf [verified]
6. Teachers Institute. (n.d.). *Setting learning objectives: A guide for effective teaching.* Retrieved June 15, 2026, from https://teachers.institute/instruction-in-higher-education/setting-learning-objectives-effective-teaching/ [verified]

7. Learning Objectives Feedback Form

Definition

A learning objective is a statement of what an instructor or course intends to teach, cover, or accomplish during a course or learning experience, articulated primarily from the teaching side of the instructional relationship. As such, objectives become the basis by which course material is determined, content is framed, instructional practices are produced, and assessments are prepared. They are not always written in measurable, observable terms because they describe instructional intent rather than a demonstrable student performance. [2,3]

Alternative Terms

- **Aim** (UK/Commonwealth usage) — a broad, long-term statement of teaching intention, sitting *above* objectives. Aims are general statements concerning the overall goals or intentions of teaching, while objectives are the individual stages learners must achieve to reach those goals—aims are general, objectives are specific.
- **General objective / Specific objective** — a two-level split within "objective" itself: general objectives are big-picture course-level statements, while specific objectives are precise, observable statements of what learners will be able to do by the end of a lesson or unit. [5]

- **Course objectives** - Learning objectives applied to an entire course [1]
- **Program objectives** - Learning objectives applied to an entire degree program

Regional Variations

-

Comparative Notes

This is the principal way a learning objective is distinguished from a learning outcome: the outcome states what the *student* will be able to do and is, by definition, measurable and assessable, whereas the objective states what the *course* sets out to do and need not be [2, 3]. Learning outcomes are framed from the learner's perspective—what the student will take away—while instructional objectives are written from the instructor's perspective—what the instructor intends to cover. In practice the two terms are frequently used interchangeably [4], and the objective/outcome boundary is treated more sharply in some quality-assurance and accreditation frameworks than in everyday institutional usage.

Sources

- Amruth N. Kumar, Rajendra K. Raj, Sherif G. Aly, Monica D. Anderson, Brett A. Becker, Richard L. Blumenthal, Eric Eaton, Susan L. Epstein, Michael Goldweber, Pankaj Jalote, Douglas Lea, Michael Oudshoorn, Marcelo Pias, Susan Reiser, Christian Servin, Rahul Simha, Titus Winters, and Qiao Xiang. 2024. Computer Science Curricula 2023. Association for Computing Machinery, New York, NY, USA. [verified]
- Dartmouth Center for the Advancement of Learning — *Learning Objectives & Outcomes* (objectives = instructor-intended, short-term, instructor-centered; outcomes = student-centered, measurable): https://sites.dartmouth.edu/teachingresources/2025/08/01/learning-objectives-outcomes/ [verified]
- University of San Francisco, USF TEAch — *Learning Objectives & Outcomes* (objectives describe what will be covered and frame content/assessment): https://myusf.usfca.edu/usfteach/teaching/learning-objectives-outcomes [verified]
- Mager, R. F. (2004). *Preparing Instructional Objectives* (3rd ed.) — foundational source defining instructional objectives; summarized at Eastern Illinois University, *Developing Learning Objectives*: https://www.eiu.edu/instructional_design/components_of_a_learning_objective.php [verified]
- Teachers Institute. (n.d.). *Setting learning objectives: A guide for effective teaching.* Retrieved June 15, 2026, from https://teachers.institute/instruction-in-higher-education/setting-learning-objectives-effective-teaching/ [verified]

8. Competency Feedback Form

Definition

A competency is an integrated ability that combines knowledge, skills, and dispositions required to perform effectively in a particular domain or professional context. Competencies are deliberately broader than discrete learning outcomes: where a learning outcome

typically describes a single observable capability (e.g., 'implement a hash table'), a competency describes the integrated combination of cognitive, technical, and affective elements required for situated professional practice (e.g., 'select and implement an appropriate data structure for a given software design problem'). The ACM/IEEE-CS Computing Curricula 2020 (CC2020) and CS2023 use a Knowledge-Skills-Dispositions (KSD) model in which a competency is the unit of curricular design [1], [2].

Alternative Terms

- Competence (Europe, UK, Australia) - In European Qualifications Framework (EQF) terminology [3], the cognate term 'competence' is defined as 'the proven ability to use knowledge, skills and personal, social and/or methodological abilities, in work or study situations and in professional and personal development', with autonomy and responsibility as constitutive features'. Competence' is the preferred form in many international frameworks; some frameworks use both terms, distinguishing 'competency' as a defined standard and 'competence' as the demonstrated ability.
- Graduate attribute (Australia, NZ, Commonwealth) - Used at the program level to describe integrated abilities graduates are expected to possess [4].
- Capability (UK, some international contexts) - Emphasizes the ability to act effectively in unfamiliar situations, going beyond task-specific competency.
- Skill (vocational/professional contexts) - Used in TVET and industry contexts to describe specific learned abilities, sometimes as a component of competency.

Regional Variations

- In assessment and grading contexts within computing education (USA), "competency" denotes a defined performance standard a student must demonstrate at a specified mastery level in order to pass or progress, rather than a unit of curricular design [5].
- In competency-based grading systems used in CS courses (USA), each competency is the gradable object and is scored against an ordinal mastery scale instead of points or percentages [6].

Comparative Notes

A *competency* is a holistic, integrated ability that enables an individual to perform a task successfully by combining domain-specific *knowledge*, technical *skills*, and professional *dispositions* (such as being meticulous, collaborative, or proactive). Unlike a learning outcome, which may focus on a single measurable skill, a competency represents a "work-ready" capability. While North American and international frameworks (e.g., CC2020) have standardized this KSD (Knowledge-Skills-Dispositions) model, regional synonyms persist: Australian and New Zealand systems frequently refer to these as *Graduate Attributes*, while European and UK contexts often use *Capability* to describe the flexible application of competencies in novel or unpredictable environments. Competency has been defined as an additive model (competency = knowledge + skills + dispositions) in IT 2017, an intersectional model (competency = knowledge ∩ skills ∩ dispositions) in CC 2020, and a projective model (competency is a point in a 3-dimensional space with knowledge, skills and dispositions being the three axes) in CS2023 [3].

Sources

1. ACM/IEEE-CS Joint Task Force on Computing Curricula. (2020). Computing Curricula 2020 (CC2020): Paradigms for Global Computing Education.

https://www.acm.org/binaries/content/assets/education/curricula-recommendations/cc2020.pdf [verified]
2. Amruth N. Kumar, Rajendra K. Raj, Sherif G. Aly, Monica D. Anderson, Brett A. Becker, Richard L. Blumenthal, Eric Eaton, Susan L. Epstein, Michael Goldweber, Pankaj Jalote, Douglas Lea, Michael Oudshoorn, Marcelo Pias, Susan Reiser, Christian Servin, Rahul Simha, Titus Winters, and Qiao Xiang. 2024. Computer Science Curricula 2023. Association for Computing Machinery, New York, NY, USA. [verified]
3. European Parliament and Council. (2017). Recommendation on the Establishment of the European Qualifications Framework for Lifelong Learning. Official Journal of the European Union. https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32017H0615(01) [verified]
4. International Engineering Alliance, Graduate Attributes & Professional Competencies Https://Www.Internationalengineeringalliance.org/assets/Uploads/IEA-Graduate-Attributes-and-Professional-Competencies-2021.1-Sept-2021.pdf [verified]
5. **Fine, B. T. (2024). Competency and Equity Driven Grading System for Computer Science Curriculum.** *Proceedings of the 2024 ACM Conference on Innovation and Technology in Computer Science Education (ITiCSE)*. https://dl.acm.org/doi/pdf/10.1145/3649217.3653564 [verified]
6. **Evaluating Mastery-oriented Grading in an Intensive CS1 Course (2024).** *Proceedings of the 55th ACM Technical Symposium on Computer Science Education (SIGCSE 2024)*. https://zilles.cs.illinois.edu/papers/mastery_INSPER_SIGCSE_2024.pdf [verified]

9. Syllabus Feedback Form

Definition

A syllabus is a formal document that outlines the scope, learning outcomes, content schedule, assessment expectations, policies, learning resources, and responsibilities associated with an individual course. It typically includes course objectives, the schedule of topics, assessment methods, required materials, and institutional policies. In many educational contexts, it functions as a quasi-contractual document between the instructor and students [1].

Alternative Terms

- Course outline (Australia, NZ, Canada, some US institutions) - A common alternative term for the syllabus document provided to students at the start of a course [2].
- Module guide / Module handbook (UK) - A detailed guide providing information about a module's content, assessments, and policies.
- Unit outline (Australia) - The standard term used by many Australian universities for the course document provided to students.
- Course description (Europe, some international contexts) - Sometimes used to describe a shortened version of a syllabus, often appearing in course catalogues.
- Scheme of instruction (India, some South Asian countries) - Used by professional regulatory bodies to specify course content and delivery requirements [3].
- Course charter - North America - in the context of multiple concurrent offerings of a course, this serves as the blueprint for individual course syllabi [4]

Regional Variations

- **Asia / Middle East / parts of Latin America:** 'Syllabus' is often used interchangeably with 'course content,' referring specifically to the prescribed list of topics to be covered rather than a full administrative course document.
- **India and national examination systems (global):** 'Syllabus' commonly refers to a centrally mandated, government-approved document specifying the examinable topics set by a university or examination board, rather than an instructor-produced guide [2], [3].
- **Standardized systems (Asia, Middle East):** The syllabus may be a fixed, ministry-approved document allowing little or no modification by individual instructors, in contrast to the instructor-designed document typical in North America and Western Europe.

Comparative Notes

A *syllabus* (or *sílabo* in Latin American contexts) is a foundational document that defines the scope and requirements of a course. Globally, its meaning bifurcates based on educational heritage: in North America and much of Europe, it is an instructor-authored document serving as a "contract" with students, detailing policies, logistics, and schedules. Conversely, in South Asia, the Middle East, and many national K-12 systems (including the UK), a "syllabus" refers to a centrally mandated list of examinable topics provided by a ministry or exam board, with the instructor having limited control over its contents. In Australian and New Zealand higher education, the term *Unit Outline* or *Course Outline* is the preferred administrative designation for this document.

Depending on the educational system, a syllabus may be authored by the individual instructor (typical in North American higher education) or prescribed by an external authority such as a university examinations board, a national curriculum authority, or a professional accreditation body (typical in much of Asia, the Middle East, and pre-tertiary education globally) [2,3].

Sources

1. Parkes, J., & Harris, M. B. (2002). The purposes of a syllabus. College Teaching, 50(2), 55–61. https://doi.org/10.1080/87567550209595875 [verified]
2. Cambridge Assessment International Education. AS & A Level Computer Science Specification.https://www.cambridgeinternational.org/Images/697167-2026-2028-syllabus.pdf [verified]
3. University Grants Commission (UGC), India. Curriculum and Syllabus Development Guidelines. https://www.ugc.gov.in/pdfnews/7193743_FYUGP.pdf [verified]
4. *Brodley, C. E., et al. (2020). An MS in CS for non-CS Majors: Moving to Increase Diversity of Thought and Demographics in CS.* SIGCSE '20: Proceedings of the 51st ACM Technical Symposium on Computer Science Education. https://doi.org/10.1145/3328778.336680 [verified]

10. Course Objectives Feedback Form

Definition

Course objectives are high-level statements that describe what a course aims to achieve from the instructor's or institution's perspective. They provide the overarching goals that guide the selection of content, teaching strategies, and assessment methods, and are typically included in the syllabus [1], [2], [3].

Alternative Terms

- Course goals (North America, Canada) - Often used interchangeably with 'course objectives' to describe the broad aims of a course [1].
- Aims / Module aims (UK, Europe, Australia) - Preferred term in many quality-assurance frameworks (European Higher Education Area and British frameworks); 'aims' describe the instructor's intentions for the course, while 'learning outcomes' describe the expected student results [4].
- Instructional goals (North America, educational psychology, International) - Used in instructional design contexts to describe the broader purposes of a teaching unit [2].
- Learning outcomes (international, various) - Frequently used interchangeably with 'course objectives,' though technically distinct (objectives are instructor-focused; outcomes are student-centered and measurable) [4], [5].

Regional Variations

- **Many international contexts:** 'Course objectives' and 'learning outcomes' are used as synonymous terms, without distinguishing between instructor-centered goals and student-centered measurable statements.
- **Instructional design frameworks (**ABET - United States, the National Board of Accreditation - India, European Higher Education Area, ACM, IEEE-CS, and AAAI)**:** In some frameworks (e.g., Mager's behavioral objectives), 'objectives' are precise, measurable, and student-focused — more specific than 'goals' but potentially equivalent to 'learning outcomes' in other frameworks [3], [4], [5].

Comparative Notes

Course objectives are high-level statements outlining the instructional intentions and overarching goals of a course, typically written from the perspective of the instructor or institution (e.g., "To introduce the fundamentals of data structures"). In global Computing Education literature, the technical usage of this term varies significantly depending on regional accreditation frameworks [1], [4].

In institutions strictly adhering to Outcome-Based Education (OBE)—common in South Asia (e.g., India's NBA) and North America (ABET)—"Course Objectives" are rigidly distinguished from "Course Outcomes" or "Learning Outcomes" (which describe measurable student behaviors) [5]. However, in many European systems operating under the Bologna Process and general academic discourse, traditional "course objectives" have been formally reinterpreted or entirely replaced by "Intended Learning Outcomes" (ILOs), leading to the terms being used interchangeably.

Sources

1. Mager, R. F. (1997). Preparing Instructional Objectives (3rd ed.). Center for Effective Performance. (First published 1962; original cited edition 1984.)
   https://openlibrary.org/books/OL1017931M/Preparing_instructional_objectives [verified]
2. Anderson, L. W., & Krathwohl, D. R. (Eds.). (2001). A Taxonomy for Learning, Teaching, and Assessing. Longman. https://quincycollege.edu/wp-content/uploads/Anderson-and-Krathwohl_Revised-Blooms-Taxonomy.pdf [verified]

3. Biggs, J., & Tang, C. (2011). Teaching for Quality Learning at University (4th ed.). Open University Press / McGraw-Hill. https://www.researchgate.net/publication/215915395_Teaching_for_Quality_Learning_at_University [verified]
4. ABET. (2023). Criteria for Accrediting Computing Programs. https://www.abet.org [verified]
5. National Board of Accreditation (NBA), India. Self-Assessment Report Manual (Tier-I / Tier-II UG Engineering Programs). https://www.nbaind.org [verified]

11. Class - Delivery of a course Feedback Form

Definition

A class is a specific, scheduled delivery of a course to a defined group of students during a defined academic period (e.g., semester, trimester, quarter, or academic year). It is distinct from the course itself: a single course may have multiple class sections offered simultaneously, each with a different instructor, time, location, or enrollment group. The class is the unit students actually register for and are graded, and at which workload, enrollment, and scheduling are administratively recorded. The class is therefore the instantiation of a course; in formal student-record data models the course is the curricular object and the class is its scheduled delivery [1].

Alternative Terms

- Discussion section (North America) - A small scheduled session for discussion-based follow-up to lectures [2].
- Practical / Lab practical (UK, Commonwealth, India) - Hands-on experimental or computational sessions [1].
- Recitation (USA) - A small-group session, led by a teaching assistant, supplementing a large lecture course - broadly equivalent to a tutorial [3].
- Studio (design and architecture programs, international) - A project-based instructional format emphasizing creative production and critique [4].
- Section / Class Section – North America - When a course is offered in multiple sections, a class is called a class section. The term is often used in course registration systems [5].
- Offering – some North American and international institutions - The specific instance of a course offered in a given term [5].
- Module instance / Module delivery – UK, Commonwealth - The specific running of a module in a given academic year or term [6].
- Course instance / Course section – some European and international institutions - A term used in digital academic management systems to refer to a single scheduled delivery of a course.
- Timetabled class or scheduled class – Australia, UK - A scheduled instructional (weekly) session associated with a course.

Regional Variations

- **Colloquial use (global):** The word 'class' is widely used to mean both a course and a class section interchangeably in everyday speech, causing ambiguity in academic planning discussions.

- **Some institutions:** 'Class' refers to a single instructional meeting (e.g., a one-hour lecture on a Tuesday), rather than the full semester-long enrollment group, adding a further layer of ambiguity.

Comparative Notes

A class is a generic term which could mean one offering of a course, or a cohort of students (e.g., graduating class). When used to refer to an offering of a course, a class may use one of many formats: lecture, seminar, workshop, laboratory or tutorial.

These terms describe the distinct modes of course delivery — the specific instructional formats in which course content is taught. A lecture typically involves direct instruction to a large group; a seminar involves guided discussion in a small group; a laboratory involves hands-on practical work; a tutorial provides individualized or small-group guidance; and a workshop is an interactive, activity-based session. These formats differ in group size, instructor role, student participation, and credit implications [4].

In North America, *Recitation* or *Discussion Sections* accompany large lectures; in the UK and Australia, these are called *Tutorials* [3], [7]. (Notably, in global tech parlance, "tutorial" often refers to a self-paced digital guide rather than a scheduled class). The term *Seminar* also diverges: in North America, it denotes a small discussion-based course, whereas in Central Europe (e.g., Germany's *Proseminar* / *Oberseminar*), it is a formalized format where students independently research, write, and deliver lectures to their peers. Understanding these logistical terms is vital for international credit transfer and reading global pedagogical literature.

Sources

1. University Grants Commission (UGC), India. (2015). Guidelines on Choice Based Credit System (CBCS). UGC. [verified]
2. Ray V. Rasmussen, Practical Discussion Techniques for Instructors, AACE Journal, 1984, 12(2), 38-47 [verified]
3. Rutgers University, School of Arts and Sciences – Academic Advising. *What is a recitation and do I have to attend?* . sasundergrad.rutgers.edu [verified]
4. Aksoy, Y. et al. (2026). *A Comparative Evaluation Model for Design Studio Pedagogy: Linking Educational Objectives and Professional Readiness in Architectural Higher Education. Architecture*, 6(1), 7. MDPI [verified]
5. AACRAO (American Association of Collegiate Registrars and Admissions Officers). (2024). *Higher Education Glossary*. aacrao.org [verified[
6. Maureen Biggers, Tuba Yilmaz, and Monica Sweat. 2009. Using collaborative, modified peer led team learning to improve student success and retention in intro cs. In Proceedings of the 40th ACM technical symposium on Computer science education (SIGCSE '09). Association for Computing Machinery, New York, NY, USA, 9–13. https://doi.org/10.1145/1508865.1508872 [verified[
7. Rios, J. (2024). Exploring the teaching methods used in graduate teaching assistant-led calculus recitations. *International Journal of Mathematical Education in Science and Technology, 56*(10), 1907–1933. https://doi.org/10.1080/0020739X.2024.2376721 [verified]

12. Class Section Feedback Form

Definition

A class section is one offering of a course when a course is offered multiple times in a term. The sections share the same overall course identity, but they may differ in important ways, including a unique section identifier, the assigned instructor of record, the meeting schedule (days, times, and location), the instructional modality (in-person, hybrid, or fully online), assignments, assessments, and instructional approaches [1], [2].

Alternative Terms

- Class – North America, colloquial - Frequently used to refer to both the scheduled section and the course itself, though technically distinct.
- Offering – some North American and international institutions - The specific instance of a course offered in a given term.
- Module instance / Module delivery – UK, Commonwealth - The specific running of a module in a given academic year or term.
- Course instance / Course section – some European and international institutions - A term used in digital academic management systems to refer to a single scheduled delivery of a course [1].
- Timetabled class or scheduled class, or teaching group – Australia, UK - A scheduled instructional (weekly) session associated with a course [1], [2].
- **Section** – Widely used in higher education administration to identify one enrolment group associated with a course.

Regional Variations

- **Colloquial use (global):** The word 'class' is widely used to mean both a course and a class section interchangeably in everyday speech, causing ambiguity in academic planning discussions [1], [2].
- **Some institutions:** 'Class' refers to a single instructional meeting (e.g., a one-hour lecture on a Tuesday), rather than the full semester-long enrollment group, adding a further layer of ambiguity.
- **North America:** A distinction is generally made between a **course** (the academic unit) and a **section** (one scheduled offering of that course during a specific term).
- **United Kingdom and Ireland:** The term **module** is commonly used instead of **course**, while separate deliveries are often described as **module instances** or **module deliveries**.
- **Australia and New Zealand:** Institutions frequently distinguish between the **course** (degree programme), the **unit** or **subject**, and the **class** or **timetabled class** (individual scheduled teaching session), making the meaning of *class* context-dependent.
- **Continental Europe:** Student information systems commonly distinguish a **course instance** or **course offering** from the curriculum-level course definition.

Comparative Notes

A **class section** differs from a **course** (or **module**) in that the course represents the curriculum-defined academic unit, whereas the class section is a specific scheduled delivery of that course during a particular teaching period. A single course may therefore have one or

multiple class sections. Likewise, a class section should not be confused with an individual **class meeting**, which refers to one scheduled lecture, laboratory, tutorial, or seminar within the section. Distinguishing these concepts is important for institutional data management, learning analytics, and computing education research because instructional practices and student outcomes may vary across sections of the same course [1], [2].

Sources

1. Common Education Data Standards. (n.d.). CEDS data model: Course and Course Section entities. https://ceds.ed.gov/dataModelEntities.aspx [Verified]
2. CC2020 Task Force. (2021). *Computing Curricula 2020: Paradigms for Global Computing Education.* Association for Computing Machinery. https://doi.org/10.1145/3467967 [verified]

13. Class - Student cohort Feedback Form

Definition

A class is a formal or informal group of students who are associated by a shared academic status, program stage, year of entry, or expected year of graduation. In this sense, a class is not a course or a section of a course. Rather, it refers to the students collectively. A class is typically subject to the same catalog requirements: the set of curriculum rules, degree requirements, and academic policies in force at the time of the students' entry into the program [1], [2], [3].

Alternative Terms

- **Year group/intake cohort — UK, Commonwealth countries, and** International**:** referring to students admitted in the same academic year [1].
- **Batch — India, Kenya, Sudan**, Pakistan, and Bangladesh: In Indian, Kenyan and Sudanese university systems, the term **batch** is standard — the *2022 batch* denotes students admitted in 2022, identified by entry year rather than graduation year.
- **Entering class / Incoming class** – North America. Frequently used for students beginning a programme in a particular academic year (e.g., *Class of 2029*).
- **Graduating class** – International. Refers to students expected to complete a programme in the same graduation year [1], [2].

Regional Variations

- **North America:** The expression **Class of [year]** commonly identifies students by their expected graduation year, while **cohort** is widely used in educational research and institutional reporting.
- **United Kingdom and Ireland: Year group** and **intake cohort** are commonly used to describe students entering in the same academic year, while **cohort** predominates in higher education research [1].
- **Australia and New Zealand: Cohort** is the preferred academic and administrative term, particularly in discussions of student progression and programme evaluation.

- **India, Kenya, Sudan, Pakistan, Bangladesh, and neighbouring higher education systems: Batch** is the standard institutional term for students admitted in the same academic year.
- **International computing education research: Student cohort** is the preferred term because it clearly distinguishes a group of students from a course, class section, or instructional meeting and supports comparisons across institutions and educational systems [2], [3].

Comparative Notes

A **class** in the sense of a **student cohort** differs fundamentally from a **course**, which is an individual unit of study, and from a **class section**, which is a particular scheduled offering of a course. Whereas students from multiple cohorts may enrol together in the same course or class section, members of a student cohort share a common programme entry point and are typically governed by the same curriculum requirements throughout their studies.
This distinction is particularly important in computing education research, where analyses of retention, progression, curriculum effectiveness, and graduation are usually conducted at the cohort level rather than at the course or class-section level [3].

Sources

1. **Akhtar, S., Gao, Y., Keshwani, A., & Neubauer, L. C. (2024).** *Cohort-based learning to transform learning in graduate public health: key qualitative findings from a pilot study.* **Frontiers in Education, 9**, 1457550. https://doi.org/10.3389/feduc.2024.1457550 [Verified]
2. CC2020 Task Force. (2021). *Computing Curricula 2020: Paradigms for Global Computing Education.* Association for Computing Machinery. https://doi.org/10.1145/3467967 [Verified]
3. Kumar, A. N., McCauley, R., Simon, B., et al. (2023). *Computer Science Curricula 2023 (CS2023): Curriculum Guidelines for Undergraduate Computer Science.* Association for Computing Machinery. https://doi.org/10.1145/3664191 [Verified]

14. Lecture Feedback Form

Definition

A lecture is a scheduled, instructor-led instructional session in which a subject-matter expert delivers or facilitates a structured discourse on a defined body of course content to an enrolled student audience. It is the primary mode of content transmission in most degree programs and typically constitutes the principal section type to which other dependent section types — such as recitations, laboratories, and tutorials — are subordinate. Lectures may be delivered in-person, synchronously online, or asynchronously via recorded media [1], [2].

Alternative Terms

- **Class (North America):** Used colloquially to describe any standard lecture session.

- **Plenary Session (International):** Commonly used when a single keynote lecture is delivered to an entire combined academic intake or department.
- **Guest Lecture - internationa**l: when a guest, other than the usual instructor, delivers a class or lecture content.
- **Lecture session** – International. Used to distinguish an individual lecture from the lecture component of a course.
- **Mass lecture** – Used in some higher education systems to describe lectures attended by a large student cohort [1].

Regional Variations

- **Seminar — North America vs. Europe:** In North American usage, a 'seminar' often refers to a small, discussion-based course offered as a standalone credit-bearing course. In German-speaking countries and several other European higher education systems, a 'Seminar' is a formally defined instructional format with its own credit value, typically requiring students to present and discuss research papers [1].
- **Tutorial — UK/Australia vs. United States:** In the UK and Australia, a 'tutorial' is a regular small-group instructional session integral to the course structure. In American usage, 'tutorial' more commonly refers to a self-paced instructional resource (e.g., an online tutorial) or informal academic support, rather than a scheduled course component [1].
- **Laboratory — International:** Laboratory sessions emphasize practical application and hands-on computing activities. The credit value assigned to laboratory hours varies by system; in many countries, laboratory hours carry different credit weighting than lecture hours (e.g., India's CBCS: 2 lab hours = 1 credit vs. 1 lecture hour = 1 credit) [3].
- **Recitation / Discussion section — North America:** Large lecture courses are frequently supplemented by **recitation** or **discussion sections**, in which students solve problems, discuss lecture material, or receive additional guidance from teaching assistants or instructors.

Comparative Notes

The terms *Lecture, Seminar, Laboratory, Tutorial, and Workshop* describe distinct structural formats for delivering computing education. While *Lecture* (large-group direct instruction) and *Laboratory* (hands-on, practical computing work) are universally understood, smaller group formats vary significantly by region. In North America, *Recitation* or *Discussion Sections* accompany large lectures; in the UK and Australia, these are called *Tutorials*. (Notably, in global tech parlance, "tutorial" often refers to a self-paced digital guide rather than a scheduled class). The term *Seminar* also diverges: in North America, it denotes a small discussion-based course, whereas in Central Europe (e.g., Germany's *Proseminar* / *Oberseminar*), it is a formalized format where students independently research, write, and deliver lectures to their peers. Understanding these logistical terms is vital for international credit transfer and reading global pedagogical literature.

Contemporary computing education increasingly integrates active-learning strategies within lectures, making lectures interactive rather than exclusively instructor-centred [3]. Consequently, the distinction between lectures and other instructional formats is based more on their primary pedagogical purpose than on the amount of student interaction [1].

Sources

1. Biggs, J., & Tang, C. (2011). Teaching for Quality Learning at University (4th ed.). Open University Press / McGraw-Hill. https://books.google.ro/books?id=XhjRBrDAESkC&printsec=frontcover&hl=ro&source=gbs_ge_summary_r&cad=0#v=onepage&q&f=false [verified]
2. Lombardi, D., Shipley, T. F., Bailey, J. M., Bretones, P. S., Prather, E. E., Ballen, C. J., Knight, J. K., Smith, M. K., Cooper, M. M., Prince, M., Atit, K., Uttal, D. H., LaDue, N. D., McNeal, P. M., Ryker, K., St. John, K., & van der Hoeven Kraft, K. J. (2021). *The Curious Construct of Active Learning*. **Perspectives on Psychological Science, 16(6), 1187–1209.** https://doi.org/10.1177/1529100620973974 [verified]
3. University Grants Commission (UGC), India. (2015). Guidelines on Choice Based Credit System (CBCS). UGC. https://www.ugc.gov.in/pdfnews/8023719_guidelines-for-cbcs.pdf [verified]

15. Seminar Feedback Form

Definition

A **seminar** is an advanced, interaction-intensive instructional format in which a relatively small group of students meets to critically examine, discuss, debate, and present research on specialized academic topics. In a seminar, the instructor's role typically shifts from primary lecturer to facilitator or moderator. The instructor guides discussion, frames key questions, supports scholarly inquiry, and ensures sustained engagement with assigned readings, research problems, or project findings. A seminar may be used for instruction or assessment. Seminars are typically conducted in-person or synchronously online to facilitate live, contingent, multi-participant discourse [1], [2].

Alternative Terms

- **Colloquium (North America / Europe):** A specialized seminar series, often involving guest researchers or postgraduate presentations. Participation is generally open beyond a single course cohort [1], [2].
- **Reading Group (International):** An informal or non-credit academic seminar dedicated to analyzing specific research literature. Reading groups are common in research laboratories, graduate programmes, and computing education research communities and may operate with or without formal assessment [1], [2], [3].

Regional Variations

- **Seminar — Kenya and India:** A seminar may also refer to a structured academic presentation delivered by a student or group of students, often as part of a course, capstone project, research project, or end-of-semester assessment. In this sense, a seminar typically involves a short formal talk, often lasting 15–30 minutes, in which students present their work, explain their methods, summarize findings, and respond to questions from classmates, instructors, or evaluators [4], [5].
- **Seminar — North America vs. Europe:** In North American usage, a 'seminar' often refers to a small, discussion-based course offered as a standalone credit-bearing course. In German-speaking countries, a 'Seminar' is a formally defined instructional

format in which students independently research, write, and deliver lectures to their peers or present and discuss research papers [1], [2].

- **Tutorial — UK/Australia vs. United States:** In the UK and Australia, a 'tutorial' is a regular small-group instructional session integral to the course structure. In American usage, 'tutorial' more commonly refers to a self-paced instructional resource (e.g., an online tutorial) or informal academic support, rather than a scheduled course component [1], [2].
- **Laboratory — contact hours and credit:** The credit value assigned to laboratory hours varies by system; in many countries, laboratory hours carry different credit weighting than lecture hours (e.g., India's CBCS: 2 lab hours = 1 credit vs. 1 lecture hour = 1 credit) [2].

Comparative Notes

The terms *Lecture, Seminar, Laboratory, Tutorial, and Workshop* describe distinct structural formats for delivering computing education. While *Lecture* (large-group direct instruction) and *Laboratory* (hands-on, practical computing work) are universally understood, smaller group formats vary significantly by region. In North America, *Recitation* or *Discussion Sections* accompany large lectures; in the UK and Australia, these are called *Tutorials*. (Notably, in global tech parlance, "tutorial" often refers to a self-paced digital guide rather than a scheduled class). The term *Seminar* also diverges: in North America, it denotes a small discussion-based course, whereas in Central Europe (e.g., Germany's *Proseminar* / *Oberseminar*), it is a formalized format where students independently research, write, and deliver lectures to their peers. Understanding these logistical terms is vital for international credit transfer and reading global pedagogical literature [4], [5].

Sources

1. Ramsden, P. (2003). Learning to Teach in Higher Education (2nd ed.). Routledge. [verified]
2. Biggs, J., & Tang, C. (2011). Teaching for Quality Learning at University (4th ed.). Open University Press / McGraw-Hill. [verified]
3. *Decker, A., Becker, B. A., Ko, A. J., McGill, M. M., Pérez-Quiñones, M. A., Vahrenhold, J., et al. (2022). Piecing Together the Next 15 Years of Computing Education Research Workshop Report. Proceedings of the 53rd ACM Technical Symposium on Computer Science Education (SIGCSE TS 2022). https://doi.org/10.1145/3478432.3499037* [verified]
4. University Grants Commission (UGC), India. (2015). Guidelines on Choice Based Credit System (CBCS). UGC. [verified]
5. Hyman, R. T. (1980). Improving Discussion Leadership. Teachers College Press. [verified]

16. Colloquium Feedback Form

Definition

A colloquium is a recurring or episodic scholarly academic meeting for expert discussion in which invited subject-matter experts deliver formal presentations on their current research or a topic of disciplinary significance, followed by structured question-and-answer exchange and open discussion.

Alternative Terms

- **Colloquium (North America / Europe):** A specialized seminar series, often involving guest researchers or postgraduate presentations.
- **Reading Group (International):** An informal or non-credit academic seminar dedicated to analyzing specific research literature.

Regional Variations

- **Seminar — North America vs. Europe:** In North American usage, a 'seminar' often refers to a small, discussion-based course offered as a standalone credit-bearing course [1]. In German-speaking countries, a 'Seminar' is a formally defined instructional format with its own credit value, typically requiring students to present and discuss research papers.
- **Tutorial — UK/Australia vs. United States:** In the UK and Australia, a 'tutorial' is a regular small-group instructional session integral to the course structure. In American usage, 'tutorial' more commonly refers to a self-paced instructional resource (e.g., an online tutorial) or informal academic support, rather than a scheduled course component.
- **Laboratory — contact hours and credit:** The credit value assigned to laboratory hours varies by system; in many countries, laboratory hours carry different credit weighting than lecture hours (e.g., India's CBCS: 2 lab hours = 1 credit vs. 1 lecture hour = 1 credit) [1], [2].

Comparative Notes

A colloquium is distinct from a seminar in that it is not primarily an instructional or educational session tied to a course. In modern usage, colloquia are meetings, most often in an academic setting, in which attendees deliver talks on a topic or set of topics and then answer questions and enter discussion

The terms *Lecture, Seminar, Laboratory, Tutorial, and Workshop* describe distinct structural formats for delivering computing education [3]. While *Lecture* (large-group direct instruction) and *Laboratory* (hands-on, practical computing work) are universally understood, smaller group formats vary significantly by region. In North America, *Recitation* or *Discussion Sections* accompany large lectures; in the UK and Australia, these are called *Tutorials*. (Notably, in global tech parlance, "tutorial" often refers to a self-paced digital guide rather than a scheduled class). The term *Seminar* also diverges: in North America, it denotes a small discussion-based course, whereas in Central Europe (e.g., Germany's *Proseminar* / *Oberseminar*), it is a formalized format where students independently research, write, and deliver lectures to their peers. Understanding these logistical terms is vital for international credit transfer and reading global pedagogical literature.

Sources

1. University Grants Commission (UGC), India. (2015). Guidelines on Choice Based Credit System (CBCS). UGC. [verified]
2. Ramsden, P. (2003). Learning to Teach in Higher Education (2nd ed.). Routledge. [verified]
3. Biggs, J., & Tang, C. (2011). Teaching for Quality Learning at University (4th ed.). Open University Press / McGraw-Hill. [verified]

17. Recitation Feedback Form

Definition

A recitation (or recitation section) is a scheduled, small-group interactive instructional session that runs concurrently with, and is subordinate to, a large-group lecture course [1], [6]. Led by a teaching assistant (TA) or instructor, its primary purpose is to reinforce, clarify, and apply the theoretical computing concepts introduced in the main lectures [2], [8]. In a computer science context, recitations bridge the gap between abstract theory and practical implementation; they are typically used to work through complex algorithmic proofs, trace execution steps of data structures, conduct interactive live-coding demonstrations, and review solutions to rigorous programming assignments or examinations [7].

Alternative Terms

- **Colloquium (North America / Europe):** A specialized seminar series, often involving guest researchers or postgraduate presentations [5].
- **Reading Group (International):** An informal or non-credit academic seminar dedicated to analyzing specific research literature [5].
- **Discussion Section** (North America): A small-group session attached to a lecture course, emphasizing discussion, problem-solving, and clarification of lecture material [2], [4], [6].
- **Tutorial** (United Kingdom, Australia, New Zealand): A scheduled small-group instructional session where students work through exercises, discuss concepts, and receive individualized academic support [1], [2].
- **Exercise Class / Problem Class** (Europe): A session devoted to solving assigned problems and applying theoretical concepts introduced in lectures [2].
- **Practical Discussion Session** (Various institutions): A hybrid format combining conceptual review with guided computational exercises [6].

Regional Variations

- **Seminar — North America vs. Europe:** In North American usage, a 'seminar' often refers to a small, discussion-based course offered as a standalone credit-bearing course [6]. In German-speaking countries, a 'Seminar' is a formally defined instructional format with its own credit value, typically requiring students to present and discuss research papers [2].
- **Tutorial — UK/Australia vs. United States:** In the UK and Australia, a 'tutorial' is a regular small-group instructional session integral to the course structure [1]. In American usage, 'tutorial' more commonly refers to a self-paced instructional resource (e.g., an online tutorial) or informal academic support, rather than a scheduled course component [7].
- **Laboratory — contact hours and credit:** The credit value assigned to laboratory hours varies by system; in many countries, laboratory hours carry different credit weighting than lecture hours (e.g., India's CBCS: 2 lab hours = 1 credit vs. 1 lecture hour = 1 credit) [3], [6].

Comparative Notes

Unlike a laboratory, a recitation typically focuses on guided problem-solving, analytical discussion, and peer-to-peer inquiry rather than independent software development or system configuration [6].

The terms *Lecture, Seminar, Laboratory, Tutorial, and Workshop* describe distinct structural formats for delivering computing education. While *Lecture* (large-group direct instruction) and *Laboratory* (hands-on, practical computing work) are universally understood, smaller group formats vary significantly by region [7]. In North America, *Recitation* or *Discussion Sections* accompany large lectures; in the UK and Australia, these are called *Tutorials* [1], [2]. (Notably, in global tech parlance, "tutorial" often refers to a self-paced digital guide rather than a scheduled class). The term *Seminar* also diverges: in North America, it denotes a small discussion-based course, whereas in Central Europe (e.g., Germany's *Proseminar* / *Oberseminar*), it is a formalized format where students independently research, write, and deliver lectures to their peers. Understanding these logistical terms is vital for international credit transfer and reading global pedagogical literature [7].

Sources

1. Ramsden, P. (2003). Learning to Teach in Higher Education (2nd ed.). Routledge. https://www.routledge.com/Learning-to-Teach-in-Higher-Education/Ramsden/p/book/9780415303453
2. Biggs, J., & Tang, C. (2011). Teaching for Quality Learning at University (4th ed.). Open University Press / McGraw-Hill. https://www.researchgate.net/publication/215915395_Teaching_for_Quality_Learning_at_University [verified]
3. University Grants Commission (UGC), India. (2015). Guidelines on Choice Based Credit System (CBCS). UGC. https://www.ugc.gov.in/pdfnews/8023719_guidelines-for-cbcs.pdf [verified]
4. Hyman, R. T. (1980). Improving Discussion Leadership. Teachers College Press. [verified]
5. Grinnell, F. (2009). *Everyday Practice of Science: Where Intuition and Passion Meet Objectivity and Logic*. Oxford University Press. https://academic.oup.com/book/3220?login=false [verified]
6. Felder, R. M., & Brent, R. (2016). *Teaching and Learning STEM: A Practical Guide*. Jossey-Bass. [verified]
7. Association for Computing Machinery (ACM) & IEEE Computer Society. (2023). *Computer Science Curricula 2023 (CS2023): Curriculum Guidelines for Undergraduate Degree Programs in Computer Science*. https://dl.acm.org/doi/epdf/10.1145/3664191 [verified]
8. Lowman, J. (1995). *Mastering the Techniques of Teaching* (2nd ed.). Jossey-Bass. *https://www.wiley.com/en-us/shop/general-introductory-education/mastering-the-techniques-of-teaching-2nd-edition-p-9780787955687* [verified]

18. Laboratory Feedback Form

Definition

A **laboratory**, or **lab**, is a practical, hands-on instructional format in which students apply theoretical concepts to experimental, empirical, computational, or technical tasks. Labs are typically scheduled, and supervised by an instructor, teaching assistant, or technical staff

member and may take place in a dedicated physical facility, a computer laboratory, or a virtual/simulated environment to support remote-access instrumentation, or cloud-based computational infrastructure. In a lab, designed to **extend the content introduced in an associated lecture section or provide hands-on practice.** Students may follow structured procedures, conduct experiments, run simulations, test hypotheses, write and debug code, collect and analyze data, or manipulate physical or digital components. The purpose of a lab is to develop technical proficiency, observational skills, problem-solving ability, and practical understanding through direct engagement with materials, tools, systems, or data. Laboratory activities may be highly structured or inquiry-based, depending on the intended learning outcomes and educational level [1], [2], [4], [5].

Alternative Terms

- **Practical / Lab Practical (UK, India,** Ireland, Australia, New Zealand, India, South Africa, **Commonwealth):** The standard terminology used for hands-on technical or scientific exercises [1], [2], [3].
- **Practicum (North America):** Often used to denote applied laboratory work or field-based practical execution within professional tracks [1], [2].
- Discussion section (North America) - A small scheduled session for discussion-based follow-up to lectures.
- Studio (design and architecture programs, international) - A project-based instructional format emphasizing creative production and critique [2], [4].

Regional Variations

- **Lab - international:** A lab may also be used to refer to the space in which laboratory sections are held [1], [4].
- **Seminar — North America vs. Europe:** In North American usage, a 'seminar' often refers to a small, discussion-based course offered as a standalone credit-bearing course. In German-speaking countries, a 'Seminar' is a formally defined instructional format with its own credit value, typically requiring students to present and discuss research papers.
- **Tutorial — UK/Australia vs. United States:** In the UK and Australia, a 'tutorial' is a regular small-group instructional session integral to the course structure. In American usage, 'tutorial' more commonly refers to a self-paced instructional resource (e.g., an online tutorial) or informal academic support, rather than a scheduled course component.
- **Laboratory — contact hours and credit:** The credit value assigned to laboratory hours varies by system; in many countries, laboratory hours carry different credit weighting than lecture hours (e.g., India's CBCS: 2 lab hours = 1 credit vs. 1 lecture hour = 1 credit).

Comparative Notes

The terms *Lecture, Seminar, Laboratory, Tutorial, and Workshop* describe distinct structural formats for delivering computing education. While *Lecture* (large-group direct instruction) and *Laboratory* (hands-on, practical computing work) are universally understood, smaller group formats vary significantly by region. In North America, *Recitation* or *Discussion Sections* accompany large lectures; in the UK and Australia, these are called *Tutorials*. (Notably, in global tech parlance, "tutorial" often refers to a self-paced digital guide rather than a scheduled class). The term *Seminar* also diverges: in North America, it denotes a small discussion-based course, whereas in Central Europe (e.g., Germany's *Proseminar* /

Oberseminar), it is a formalized format where students independently research, write, and deliver lectures to their peers. Understanding these logistical terms is vital for international credit transfer and reading global pedagogical literature.

Sources

1. Ramsden, P. (2003). Learning to Teach in Higher Education (2nd ed.). Routledge. [verified]
2. Biggs, J., & Tang, C. (2011). Teaching for Quality Learning at University (4th ed.). Open University Press / McGraw-Hill. [verified]

   https://www.researchgate.net/publication/215915395_Teaching_for_Quality_Learning_at_University [verified]
3. University Grants Commission (UGC), India. (2015). Guidelines on Choice Based Credit System (CBCS). UGC.https://www.ugc.gov.in/pdfnews/8023719_guidelines-for-cbcs.pdf [verified]
4. Park, Y., Hu, H., Yuan, X., & Li, H. (2018). *Enhancing Security Education Through Designing SDN Security Labs in CloudLab.* In *Proceedings of the 49th ACM Technical Symposium on Computer Science Education (SIGCSE '18)* (pp. 185–190). ACM. DOI: **10.1145/3159450.3159514**. https://doi.org/10.1145/3159450.3159514 [verified]
5. Hubbard, A. (2018). *Pedagogical content knowledge in computing education: A review of the research literature. Computer Science Education, 28*(2), 117–135. DOI: **10.1080/08993408.2018.1509580**. https://doi.org/10.1080/08993408.2018.1509580 [verified]

19. Tutorial Feedback Form

Definition

A **tutorial** is a supplemental, typically one-on-one, instructional session designed to support students' learning outside the main class meeting. It is often used to review lecture material, work through examples, clarify difficult concepts, answer questions, and provide guided practice on assignments or problem-solving strategies. Tutorials may be led by the instructor, a teaching assistant, or a peer mentor, and they give students a more interactive setting for feedback, discussion, and skill development. In Computing Science Education, tutorials provide opportunities for guided problem solving, discussion, formative assessment, code review, collaborative learning, and individualized feedback. Tutorials encourage active student participation through questions, worked examples, programming exercises, or discussion of course material [1], [2], [5].

Alternative Terms

- Recitation (USA) - A small-group session, led by a teaching assistant, supplementing a large lecture course - broadly equivalent to a tutorial [1], [2].
- Discussion section (North America) - A small scheduled session for discussion-based follow-up to lectures [1], [4].
- Studio (design and architecture programs, international) - A project-based instructional format emphasizing creative production and critique.

Regional Variations

- **Tutorial — Commonwealth countries:** In the UK and Australia, a 'tutorial' is a regular small-group instructional session integral to the course structure [1], [2].

- **Laboratory — contact hours and credit:** The credit value assigned to laboratory hours varies by system; in many countries, laboratory hours carry different credit weighting than lecture hours (e.g., India's CBCS: 2 lab hours = 1 credit vs. 1 lecture hour = 1 credit) [3].
- **Online tutorial in Computing Education - international:** The word *tutorial* is also widely used to describe self-paced instructional resources (e.g., programming tutorials, software tutorials, video tutorials, interactive coding tutorials). This meaning is distinct from the formal instructional format used in higher education [5].

Comparative Notes

The terms *Lecture, Seminar, Laboratory, Tutorial, and Workshop* describe distinct structural formats for delivering computing education. While *Lecture* (large-group direct instruction) and *Laboratory* (hands-on, practical computing work) are universally understood, smaller group formats vary significantly by region. In North America, *Recitation* or *Discussion Sections* accompany large lectures; in the UK and Australia, these are called *Tutorials*. (Notably, in global tech parlance, "tutorial" often refers to a self-paced digital guide rather than a scheduled class) [1], [2]. The term *Seminar* also diverges: in North America, it denotes a small discussion-based course, whereas in Central Europe (e.g., Germany's *Proseminar* / *Oberseminar*), it is a formalized format where students independently research, write, and deliver lectures to their peers [5]. Understanding these logistical terms is vital for international credit transfer and reading global pedagogical literature.

Sources

1. Ramsden, P. (2003). Learning to Teach in Higher Education (2nd ed.). Routledge. [verified]
2. Biggs, J., & Tang, C. (2011). Teaching for Quality Learning at University (4th ed.). Open University Press. [verified] McGraw-Hill.https://www.researchgate.net/publication/215915395_Teaching_for_Quality_Learning_at_University [verified]
3. University Grants Commission (UGC), India. (2015). Guidelines on Choice Based Credit System (CBCS). UGC.https://www.ugc.gov.in/pdfnews/8023719_guidelines-for-cbcs.pdf [verified]
4. Hyman, R. T. (1980). Improving Discussion Leadership. Teachers College Press. [verified]
5. *Hubbard, A. (2018). Pedagogical content knowledge in computing education: A review of the research literature. Computer Science Education, 28(2), 117–135. https://doi.org/10.1080/08993408.2018.1509580*. [verified]

20. Core Courses Feedback Form

Definition

Core courses are mandatory, or required, courses within a degree program that provide the foundational knowledge and skills essential to the discipline [1]. All students in the program are typically required to complete core courses regardless of their chosen area of specialization. In Computer Science (CS) curricula, core courses (such as *Software Development Fundamentals*, *Data Structures and Algorithms*, *Discrete Structures*, and

Computer Architecture) cover the indispensable Knowledge Areas defined by international curricular standards, such as the ACM/IEEE-CS CS2023 guidelines [1].

Alternative Terms

- Required courses / Core requirements / Mandatory courses (North America) - The standard terms used in US and Canadian university catalogues for mandatory degree courses [1].
- Compulsory modules / Core modules (UK, Ireland, Commonwealth, Europe) - The equivalent terminology in modular degree programs [2].
- Compulsory / Hard core courses (India, South Asia) - Terms used in Indian university curricula to denote required courses; 'hard core' specifically refers to courses compulsory across all students in a program.
- Core units (Australia, NZ) - The standard term used by Australian universities for mandatory degree units [3].

Regional Variations

- **Some North American institutions:** 'Core courses' may refer specifically to general education requirements applicable across all degree programs (e.g., writing, mathematics, social sciences) rather than discipline-specific requirements.
- **Global Computing Education:** The core courses refer to a set of required introductory courses in the early years of a program, roughly equivalent to core courses, but with a specific emphasis on foundational breadth rather than disciplinary depth [4].
- **Europe:** Core courses/modules are central to the teaching and learning on the programme and may introduce concepts and ideas that appear in the compulsory and optional modules.

Comparative Notes

Core courses are mandatory instructional units within a degree program that provide the foundational knowledge and skills essential to a discipline (e.g., Data Structures, Algorithms, Computer Architecture). All students in a program must typically complete these courses regardless of their specialization. Globally, the terminology for these requirements varies based on national accreditation and educational paradigms [1], [2]: North American and Australian systems typically use *core courses* or *required courses*, while the UK and European systems frequently use *compulsory modules* [1]. Notably, in some European and UK quality-assurance frameworks, a technical distinction is drawn: "core" describes the module's thematic centrality to the discipline, while "compulsory" denotes the mandatory administrative requirement for the student to take it [2], [3]. Furthermore, in South Asian and Indian frameworks, the explicit differentiation between "Hard Core" and "Soft Core" balances standardized national core competencies with flexible credit choices [5].

Sources

1. Amruth N. Kumar, Rajendra K. Raj, Sherif G. Aly, Monica D. Anderson, Brett A. Becker, Richard L. Blumenthal, Eric Eaton, Susan L. Epstein, Michael Goldweber, Pankaj Jalote, Douglas Lea, Michael Oudshoorn, Marcelo Pias, Susan Reiser, Christian Servin, Rahul Simha, Titus Winters, and Qiao Xiang. 2024. Computer

Science Curricula 2023. Association for Computing Machinery, New York, NY, USA. https://csed.acm.org/wp-content/uploads/2023/03/Version-Beta-v2.pdf [verified]
2. Quality Assurance Agency for Higher Education (QAA). (2022). Subject Benchmark Statement: Computing. https://www.qaa.ac.uk [verified]
3. **Tedre, M., & Denning, P. J.** (2016). The Long Quest for Computational Thinking. *Proceedings of the 16th Koli Calling International Conference on Computing Education Research*, 120–129. https://doi.org/10.1145/2999541.2999542 [verified]
4. **Clear, A., Parrish, A., Zhang, M., Impagliazzo, J., & McGettrick, A.** (2020). Computing Curricula 2020 (CC2020): Paradigms for Future Computing Curricula. *Proceedings of the 51st ACM Technical Symposium on Computer Science Education (SIGCSE)*, 541–542. https://www.acm.org/binaries/content/assets/education/curricula-recommendations/cc2020.pdf [verified]
5. **University Grants Commission (UGC).** (2015). *Instructional Template for Facilitating Implementation of Choice Based Credit System (CBCS)*. UGC Guidelines Govt of India. [verified]

21. Foundational Course Feedback Form

Definition

A foundational course is an introductory-level course that establishes the base knowledge and skills upon which more advanced study in a discipline is built. Foundational courses are typically taken in the early stages of a degree program and often serve as prerequisites for higher-level courses. A foundational course is a credit-bearing introductory course within a degree or study program. In Computing Science Education, foundational courses typically include subjects such as Introduction to Programming (CS1), Discrete Mathematics, Computer Systems Fundamentals, or Digital Logic, depending on the curriculum. These courses are designed to develop both disciplinary understanding and transferable competencies such as problem solving, computational thinking, and academic learning strategies. Although foundational courses are usually compulsory, with a role in establishing the conceptual basis for subsequent learning [1], [2], [3].

Alternative Terms

- Introductory course / Gateway course (North America, international) - Common terms for entry-level courses that introduce students to a discipline. In Computing Science, this commonly refers to CS1, CS2 or an equivalent introductory programming course [4], [5].
- Foundation module (UK, Commonwealth) - An introductory module providing core disciplinary grounding [6].
- Essential course / Required subject (international) - Emphasizes the non-negotiable status of foundational knowledge.
- Core introductory course, entry-level course (international) – Used in curriculum design literature to describe compulsory first-year disciplinary courses that provide essential knowledge for later study [1], [3].

Regional Variations

- **UK / Australia / Ireland:** A 'Foundation course' or 'Foundation year' refers specifically to a preparatory year of study designed for students who do not yet meet the standard entry requirements for a degree program — functionally distinct from an introductory course within a standard degree program [2], [5].
- **International:** 'Foundational course' is used synonymously with 'core course,' implying mandatory status rather than level (i.e., any required course may be called foundational regardless of whether it is introductory) [6].
- **Indian**: Foundational courses (often split into Compulsory Foundation and Elective Foundation under CBCS/NEP) are designed to build the prerequisite academic base, mathematical maturity, and broader professional skills required to understand core engineering concepts and function in a professional environment. Examples - Basic Sciences & Engineering: Engineering Physics, Engineering Chemistry, Basic Electrical/Electronics Engineering, and Value-Added/Life Skills: Technical Communication/English, Environmental Studies, Constitution of India.

- **European higher-education**: a **foundational course** is an introductory module situated at the initial levels of a study program—typically aligned with **EQF Level 5 or early Level 6 (Bologna Process)** —that provides the essential disciplinary knowledge, competencies, and academic literacies required for progression within a degree pathway. These courses establish the conceptual and methodological groundwork upon which more advanced modules are built and frequently function as **compulsory components** or **prerequisites** within a structured curriculum. Foundational courses support students' transition into university-level study by developing core skills such as critical reading, academic writing, quantitative reasoning, and discipline-specific analytical approaches [3], [6].

Comparative Notes

A *foundational course* is generally understood as an introductory-level, credit-bearing course that establishes the base knowledge required for advanced study in a discipline (e.g., CS1 or Discrete Mathematics). In North American, Middle Eastern, and Asian contexts, these are standard lower-division courses required in the early stages of a degree. However, in international computing education, the term poses a major risk of misinterpretation. In the UK, Ireland, and Australia, a *Foundation Course* or *Foundation Year* has a rigid, highly specific meaning: it is a preparatory, pre-university year of study (often called "Year 0") designed for students who do not yet meet standard entry requirements (e.g., lacking A-Levels). Therefore, global readers should be cautious not to confuse a UK "Foundation course" with a North American "Introductory" or "Gateway" degree course [2], [4].

Sources

1. Amruth N. Kumar, Rajendra K. Raj, Sherif G. Aly, Monica D. Anderson, Brett A. Becker, Richard L. Blumenthal, Eric Eaton, Susan L. Epstein, Michael Goldweber, Pankaj Jalote, Douglas Lea, Michael Oudshoorn, Marcelo Pias, Susan Reiser, Christian Servin, Rahul Simha, Titus Winters, and Qiao Xiang. 2024. Computer Science Curricula 2023. Association for Computing Machinery, New York, NY, USA. https://doi.org/10.1145/3664191 [verified]
2. Stark, J. S., & Lattuca, L. R. (1997). Shaping the College Curriculum. Allyn and Bacon. https://books.google.ro/books?redir_esc=y&hl=ro&id=vFYTp9cze2kC&q=foundational+courses#v=onepage&q=foundational%20courses&f=false [verified]

3. European Commission. (2017). *The European Qualifications Framework for Lifelong Learning (EQF).* https://europass.europa.eu/en/european-qualifications-framework-eqf [verified]
4. McCracken, M., Almstrum, V., Diaz, D., Guzdial, M., et al. (2001). A multi-national, multi-institutional study of assessment of programming skills of first-year CS students. ACM SIGCSE Bulletin, 33(4), 125–180. https://doi.org/10.1145/572139.572181 [verified]
5. Quality Assurance Agency for Higher Education (QAA). UK Quality Code: Foundation Year provision. https://www.qaa.ac.uk [verified]
6. Australian Qualifications Framework Council. (2013). AQF Glossary (Foundation Studies). https://www.aqf.edu.au [verified]

22. Elective Courses Feedback Form

Definition

Elective courses are optional courses that students may choose to include in their degree program, typically to pursue specialized interests, deepen knowledge in a particular area, or explore interdisciplinary pathways. Electives provide flexibility and personalization within the overall structure of a degree program [1].

Alternative Terms

- Optional courses (North America, UK, international) - A general synonym for elective courses emphasizing student choice [2].
- Optional modules (UK, Commonwealth) - The modular equivalent of elective courses [3].
- Soft core courses / Open electives (India, South Asia) - Terms used in Indian university curricula; 'soft core' refers to discipline-specific electives, and 'open electives' to courses chosen freely from across the institution [4].

Regional Variations

- **Some systems:** A distinction is made between 'free electives' (any course from the institution) and 'restricted electives' (a defined list within a field), but this distinction is not universal and varies by institution and country.
- **Latin America:** The boundary between elective and required courses may be less clearly defined in some national systems, with 'optativas' sometimes encompassing courses that are optional in principle but practically expected.

Comparative Notes

Free electives (North America) - Elective courses that may be chosen from any course offered across the institution, without restriction [5], [6].

Restricted / Required electives (North America) - Elective courses that must be chosen from a defined list specified by the program [6].

Sources

1. Amruth N. Kumar, Rajendra K. Raj, Sherif G. Aly, Monica D. Anderson, Brett A. Becker, Richard L. Blumenthal, Eric Eaton, Susan L. Epstein, Michael Goldweber, Pankaj Jalote, Douglas Lea, Michael Oudshoorn, Marcelo Pias, Susan Reiser, Christian Servin, Rahul Simha, Titus Winters, and Qiao Xiang. 2024. Computer Science Curricula 2023. Association for Computing Machinery, New York, NY, USA. [verified]
2. *European Commission. (2015). ECTS Users' Guide 2015.*

https://ehea.info/media.ehea.info/file/ECTS_Guide/00/0/ects-users-guide-2015_614000.pdf [verified]
3. Hedges, M. R., Pacheco, G. A., & Webber, D. J. (2014). What determines students' choices of elective modules? *International Review of Economics Education, 17*, 39–54. https://ideas.repec.org/p/uwe/wpaper/20131307.html?utm_source=chatgpt.com [verified]
4. Parthasarathy P.D., Joshi S., Reflections on Incorporating Digital Accessibility in an Operating Systems Course (2024) SIGCSE Virtual 2024 - Proceedings of the 2024 ACM Virtual Global Computing Education Conference V. 1, pp. 179 - 185, DOI: 10.1145/3649165.3690127, https://www.scopus.com/inward/record.uri?eid=2s2.0-85215528749&doi=10.1145%2f3649165.3690127&partnerID=40&md5=8b8e2d0a1ace276f19dafffaabcef8cd [verified]
5. Lunt, B. M., Ekstrom, J. J., Gorka, S., Hislop, G., Kamali, R., Lawson, E., LeBlanc, R., Miller, J., & Reichgelt, H. (2020). *IS2020: A competency model for undergraduate programs in information systems*. ACM/AIS Joint Task Force. https://www.acm.org/binaries/content/assets/education/curricula-recommendations/is2020.pdf [verified]
6. Naghedolfeizi, M., Arora, S., Yousif, N. A., & Zeng, X. (2016, June). *Computer science curriculum redesign at Fort Valley State University*. Paper presented at the 2016 ASEE Annual Conference & Exposition, New Orleans, LA. ASEE Conferences. https://doi.org/10.18260/p.26554 [verified]

23. Prerequisite Course Feedback Form

Definition

A prerequisite course is a course that must be successfully completed before a student is permitted to enroll in a more advanced course. Prerequisites ensure that students possess the necessary knowledge or skills required for success in the subsequent course [1].

Alternative Terms

- Pre-requisite module / Required prior study (UK, Ireland) - Used in modular degree programs to indicate a module that must be passed before progressing to a higher-level module [1], [2].
- Progression requirement (UK modular programs) - A requirement that must be satisfied before a student can advance to the next level of study [2].
- Prerequisite unit / Assumed knowledge (Australia, NZ) - 'Prerequisite unit' denotes a formally required course; 'assumed knowledge' denotes strongly recommended prior study that is not formally enforced [3].
- Required learning outcomes / Prerequisite module (Europe, Bologna Process) - Prerequisites may be expressed in terms of ECTS credit completion at a specified level, or as named courses [4].
- Pre-requisite paper / Eligibility condition (India, South Asia) - Terms used in Indian university curricula and regulatory frameworks (AICTE, UGC) to describe required prior courses.
- Prerequisite module / Preclusion (Singapore, Hong Kong, Malaysia) - 'Prerequisite module' indicates a required prior course; 'preclusion' indicates a course that overlaps with another and cannot be taken for credit alongside or after it [5].

Regional Variations

- **Australia / NZ:** 'Assumed knowledge' is a related but distinct concept — it represents prior study that is strongly recommended but not enforced as a formal enrollment requirement [6].
- **Singapore / Hong Kong / Malaysia:** 'Preclusion' refers to a course that so substantially overlaps with another in content that a student may not earn credit for both — a distinct but related enrollment restriction.
- **Europe (Bologna Process / ECTS):** Prerequisites may be expressed as completion of a specified number of ECTS credits at a given qualification level, rather than as specific named courses, reflecting a competency-based rather than course-based approach.

Comparative Notes

A *prerequisite course* is an instructional unit that a student must successfully complete before being permitted to enroll in a more advanced, dependent course (e.g., passing "Introduction to Programming" before taking "Data Structures"). Globally, the concept is ubiquitous to ensure students have the foundational knowledge required for success. Terminology generally aligns with local structural terms: North America uses *prerequisite course*, the UK, Europe, and parts of the Middle East use *prerequisite module*, and India often uses *pre-requisite paper*. A critical regional nuance exists in Australia and New Zealand, where universities frequently utilize *assumed knowledge*—a status indicating that prior study is heavily expected and pedagogically necessary, but unlike a formal prerequisite, is not administratively enforced to block enrollment.

Sources

1. University of East London. (2025). *Academic regulations*. https://www.uel.ac.uk/about/governance/manual-general-regulations/academic-regulations [verified]
2. University College London. (2025). *Section 6: Progression & award*. UCL Academic Manual. https://www.ucl.ac.uk/study/current-students/academic-manual/chapters/chapter-4-assessment-framework-taught-programmes/section-6-progression-award [verified]
3. University of Sydney. (2025). *Prerequisites and assumed knowledge explained*. https://www.sydney.edu.au/study/help/advice/prerequisites-and-assumed-knowledge-explained.html [verified]
4. Adelman, C. (2009). The Bologna Process for US eyes: Re-learning higher education in the age of convergence. Institute for Higher Education Policy. https://files.eric.ed.gov/fulltext/ED504904.pdf [verified]
5. National University of Singapore, Faculty of Science. (n.d.). *General academic requirements and policies*. https://www.science.nus.edu.sg/undergraduates/study-abroad-programmes/incoming/gssp/courses/ [verified]
6. Burton, B. A. (2010). Encouraging algorithmic thinking without a computer. In *Proceedings of the 12th Australasian Computing Education Conference (ACE 2010)* (Vol. 103, pp. 21-26). Australian Computer Society. https://people.smp.uq.edu.au/BenjaminBurton/papers/burton10-encouraging.pdf [verified]

24. Corequisite Course Feedback Form

Definition

A corequisite course is a course that must be taken simultaneously (i.e., in the same academic term) with another specified course [1].

Alternative Terms

- Co-requisite module (UK, Ireland, Commonwealth) - The standard modular equivalent used in UK and Commonwealth university systems [1].
- Concurrent requirement (some North American and international institutions) - Describes the requirement for simultaneous enrollment in two courses [2], [3].
- Co-requisite unit (Australia, NZ) - The term used in Australian and New Zealand modular systems [4].

Regional Variations

- **Some institutions (international):** 'Corequisite' is occasionally used loosely to refer to any course that must be completed in conjunction with another, without strictly specifying simultaneous enrollment — creating potential overlap with 'concurrent prerequisite.'
- **European systems:** The corequisite concept is often embedded implicitly within structured year-based progression rather than being explicitly labeled as a formal corequisite requirement in course descriptions.

Comparative Notes

A *corequisite course* is a unit of study that must be taken simultaneously (in the same academic term) with another specified course. Corequisites are traditionally used in Computing Education to provide concurrent structural support—such as requiring Discrete Mathematics alongside Introduction to Programming, or pairing a theoretical lecture course with an applied laboratory course. The terminology generally adapts to local structural terms: North America uses *corequisite course*, the UK uses *co-requisite module*, and Australia uses *co-requisite unit*. Notably, an administrative ambiguity exists globally: while the term traditionally dictates strict simultaneous enrollment, many university registration systems functionally treat a corequisite as a "concurrent prerequisite" (meaning the requirement is satisfied if the student is taking the course concurrently *or* has already completed it in a prior term).

Sources

1. *University of Manchester. (2024). Modular programme structure: Prerequisites and co-requisites. University of Manchester.* https://www.manchester.ac.uk [verified]
2. Ryu, W., Schudde, L., & Pack, K. (2022). Constructing corequisites: How community colleges structure corequisite math coursework and the implications for student success. *AERA Open, 8*(1), 1–13. https://doi.org/10.1177/23328584221086664 [verified]
3. Willcox, Karen E., and Luwen Huang. “Network Models for Mapping Educational Data.” *Design Science* 3 (2017): e18. https://doi.org/10.1017/dsj.2017.18. [verified]
4. Deakin University, Enrolment Code and Terminology, https://www.deakin.edu.au/students/enrolment-and-fees/enrol/enrolment-codes-and-terminology [verified]

16. Capstone Course Feedback Form

Definition

A capstone course is a culminating educational experience, typically taken in the final year of a degree program, in which students integrate and apply knowledge, skills, and competencies developed across their program to a substantial project, problem, or research activity. It is intended to demonstrate holistic achievement of program-level learning outcomes.

Alternative Terms

- Final year project (FYP) (UK, Commonwealth, Asia) - The standard term in many systems for the major independent project undertaken in the final year of an undergraduate or taught postgraduate degree [1, 2, 5].
- Capstone project / Capstone unit (Australia, NZ) - The project or course unit constituting the culminating experience of a program [3].
- Senior thesis / Senior project (North America) - Terms for a substantial independent research or design project completed in the final undergraduate year [4].
- Dissertation (UK, Commonwealth) - A substantial written research project, typically at undergraduate final year or postgraduate taught level; at doctoral level, 'thesis' is more common [5].
- Thesis (Parts of Europe) - A major research document required for postgraduate degrees; at undergraduate level, used for the final research project in some systems. [6]
- Project course (Europe) - Common in software engineering literature, especially where the culminating experience is structured around a team project. [7]

Regional Variations

- **Some North American institutions:** A 'capstone course' may be a structured taught course rather than an independent project, covering synthesis and reflection across the discipline, without requiring substantial original work.
- **UK / Commonwealth:** 'Dissertation' at undergraduate level typically refers to an extended research essay or literature-based study rather than original empirical research, whereas at postgraduate (Master's) level it involves original research. The term 'thesis' is reserved for doctoral-level work in most Commonwealth usage.

Comparative Notes

- Capstone course vs. capstone project: In many institutions, the capstone course is the formal course unit, while the capstone project is the major piece of work completed within it. Some papers use the two almost interchangeably, but they are not strictly identical.
- Capstones are nearly universal in CS programmes but vary along three principal axes: (1) form — research/thesis vs. project; (2) team structure — individual vs. team-based; and (3) external engagement — internal academic only vs. external client / industry-partner. Research-oriented and Bologna-aligned European systems tend toward individual research theses; industry-aligned and software-engineering-focused programmes tend toward team-based client-facing projects (the 'software engineering project course' tradition). Many systems use a single label ('capstone', 'FYP') across both forms, so the label alone is not informative about which form is present.

Sources

1. Hauhart, R. C., & Grahe, J. E. (2015). *Designing and Teaching Undergraduate Capstone Courses.* Jossey-Bass. *[verified]*
2. ACM/IEEE-CS Joint Curriculum Task Force. (2023). *Computer Science Curricula 2023.* ACM/IEEE. *[verified]*
3. Hammer, S., Abawi, L., Gibbings, P., Jones, H., Redmond, P., & Shams, S. (2018). Developing a generic review framework to assure capstone quality. *Higher Education Research & Development*, *37*(4), 730-743. *[verified]*
4. Trosset, C., & Weisler, S. (2018). What Makes a Senior Thesis Good?. *Change: The Magazine of Higher Learning*, *50*(1), 47-53. *[verified]*
5. Quality Assurance Agency for Higher Education (QAA). (2022). *Subject Benchmark Statement: Computing.* https://www.qaa.ac.uk *[verified]*
6. Surakka, S., & Malmi, L. (2005). Need assessment of computer science and engineering graduates. *Computer Science Education*, *15*(2), 103-121. *[verified]*
7. Sindre, G., Giannakos, M., Krogstie, B. R., Munkvold, R., & Aalberg, T. (2018). Project-Based Learning in IT Education: Definitions and Qualities. *Uniped*, *41*(2), 147–163. https://doi.org/10.18261/ISSN1893-8981-2018-02-06 *[verified]*

25. Independent Study / Directed Study Feedback Form

Definition

Independent study (sometimes directed study) is individually arranged, credit-bearing course or course-equivalent learning experience in which a student works under the supervision of a faculty member on a defined topic, project, or research question outside the structure of a standard scheduled class. The learning objectives, scope of work, assessment methods, academic outputs, and supervision arrangements are typically established through a formal learning agreement or study contract. In Computing Science Education, independent study is commonly used to support undergraduate research, advanced software development projects, interdisciplinary investigations, emerging technologies not covered by the standard curriculum, or individualized preparation for honours theses or capstone projects [1], [2], [3], [4].

Alternative Terms

- Directed reading (North America, UK) - An arrangement focused specifically on reading and discussion of a defined body of literature under faculty guidance [1], [2], [3].
- Reading course (North America) - A course credit arrangement centered on independent reading and discussion rather than lectures or formal classes [1], [2].
- Special topics / Individual study (North America) - Terms used in course registration systems to denote flexible, individually arranged credit-bearing arrangements [3].
- Supervised study / Supervised project (international) - Emphasizes the faculty oversight component of the arrangement; it is commonly used where independent study culminates in a project, report, software artifact, or research output [4], [5].

- Research project unit / Research internship (Australia, NZ) - Credit-bearing units for independent research conducted under faculty supervision [4].

Regional Variations

- **United States and Canada:** 'Independent study' refers to self-directed learning or self-paced online courses offered by institutions or third-party providers (e.g., Coursera, edX), without formal faculty supervision or institutional credit — distinct from the credit-bearing supervised arrangement described here [1], [2], [3].
- **K-12 contexts:** 'Independent study' may refer to homeschooling or an approved alternative to standard classroom attendance, a usage distinct from higher education credit arrangements.
- **United Kingdom, Ireland, Australia, and New Zealand:** Universities more commonly use terms such as **Independent Study Module**, **Directed Study**, **Research Project**, or **Dissertation Module**. Tutorial-based institutions (e.g., Oxford and Cambridge) often integrate individualized supervision into the normal tutorial system, reducing the need for separately designated independent-study courses [4], [5].
- **German-speaking higher education:** Comparable learning experiences are often organized as supervised research projects. These tend to be more formally structured than North American independent-study courses and frequently prepare students for the Bachelor or Master [5].
- **Many European universities (Bologna Process):** Independent study commonly appears as an elective project, supervised research module, or individualized learning unit, with explicit learning outcomes, ECTS credit allocation, and formal assessment aligned with programme learning objectives [4], [5].
- **Computing Science programs internationally:** Independent study is widely used to enable students to investigate emerging computing topics, conduct undergraduate research, contribute to faculty research groups, or complete substantial software engineering or interdisciplinary projects [2], [6].

Comparative Notes

Independent and directed study courses are nearly universal in higher-education systems with any individual-supervision tradition, but their formal structure varies. Anglo-American systems tend toward open-ended supervised study with a negotiated learning contract; tutorial-based systems (Oxford, Cambridge, some Commonwealth) achieve some of the same effect through their regular tutorial structures and may not require a separately labelled independent-study course [1], [2]. CS programmes worldwide use these courses to support undergraduate research and to give advanced students opportunities to extend beyond the standard curriculum, though structured undergraduate-research programmes (e.g., U.S. NSF REU, Canada NSERC USRA) provide a more developed alternative pathway where they exist [2], [6].

Sources

1. Stark, J. S., & Lattuca, L. R. (1997). *Shaping the College Curriculum: Academic Plans in Context*. Allyn & Bacon [verified]
2. Gestwicki, P., & McNely, B. (2016). *Interdisciplinary Projects in the Academic Studio*. **ACM Transactions on Computing Education, 16(2)**, Article 8. https://doi.org/10.1145/2732157 *[verified]*
3. Knowles, M. S. (1975). *Self-Directed Learning: A Guide for Learners and Teachers*. Association Press. https://eric.ed.gov/?id=ED114653 *[verified]*
4. Quality Assurance Agency for Higher Education (QAA). *UK Quality Code for Higher Education*. https://www.qaa.ac.uk/ *[verified]*
5. HRK Press. Implementing Bologna structures and principles in German universities, https://www.hrk.de/activities/bologna-process/ *[verified]*
6. Damiano, A., et al. (2025). *A Course-based Undergraduate Research Experience (CURE) Focused Broadly on Research Methods in Computer Science*. Proceedings of the **56th ACM Technical Symposium on Computer Science Education (SIGCSE TS 2025)**. *[verified]*