

Your Question:

You asked about other states’ teacher certification policies for computer science (CS). Specifically, you were interested in information from other states on:

- Certification to teach CS in grades K-5 or K-8
- Certification to teach CS in grades 9-12
- Certification (typically bachelor’s degree in CS) vs. an additional certification or cross-endorsement (for teacher already certified in another subject area)
- Whether states differentiated CS certification or endorsements to allow a qualified instructor to teach a subset of CS (that is, computer systems, computer networks, data, algorithms, impact/ethics of technology, programming).

You also expressed interest in state approaches to broaden the diversity of the CS teacher workforce to include greater numbers of female and minority teachers.

Our Response:

CS Teacher Certifications/Endorsements

The table below, building upon basic information provided by Code.org, identifies states that offer teacher certification in computer science, including the grade levels for which certification is available, and whether the credential is an initial certification (that is, individual holds bachelor’s degree in CS) versus an additional certification (cross-endorsement) for an individual who already holds certification to teach another subject area.

Note: Table does not include licensure or endorsement requirements specific to CTE computer science coursework.

Additional data & links

[State of the States Landscape Report: State-Level Policies Supporting Equitable K-12 Computer Science Education](#) (Multiple authors, April 2017) Identifies state levers for action, emerging best practices, and challenges on eight CS policy priorities, including computer science teacher certification. Also provides cross-cutting recommendations for state action on CS.

[Recommendations for States Developing Computer Science Teacher Pathways](#) (Code.org, April 2017) Identifies immediate, short-term and long-term state actions related to secondary CS teacher endorsement and certification, and preK-12 teacher preparation pathways. **Of note:** Identifies why authors do not recommend a K-12 CS endorsement or an elementary CS endorsement.

State	Certification or Add-On Endorsement	Grade Levels	Certification/Endorsement Course or Degree Requirements (Assessment Requirements Where Readily Available)	Sources
Arizona	Endorsement	PreK-12	One course in the methods of teaching Computer Science at the elementary level. One course in the methods of teaching Computer Science at the secondary level. 7. 30 semester hours of courses in the Computer Science content area which may include one course in elementary methods of teaching Computer Science and one course in secondary methods of teaching Computer Science.	Arizona Department of Education – Certification Unit Requirements for Computer Science, PreK-12 Endorsement

State	Certification or Add-On Endorsement	Grade Levels	Certification/Endorsement Course or Degree Requirements (Assessment Requirements Where Readily Available)	Sources
Arkansas	Certification and Endorsement ¹	Certification: ² Endorsement: 4-12	<p><i>Certification:</i> Minimum ADE-approved score on the Praxis II Specialty Area and Principles of Learning and Teaching Tests, plus semester hours of coursework in Arkansas Tech University CS teacher certification program of study (only CS teacher certification program of study approved at this time. Two additional CS teacher certification programs of study are undergoing the approval process.)</p> <p><i>Endorsement:</i> No specific course requirement. From ADE Computer Science Fact Sheet: “Any teacher with a standard license will be able to add the 4-12 computer science endorsement to their license by taking and meeting the ADE approved cut score on the Praxis™ Computer Science (#5651) exam and submitting an Arkansas Educator Licensure Application.”³</p>	ADE Computer Science Fact Sheet (last updated 2/27/17); ADE Arkansas Computer Science Approval Code Requirements (last updated 4/11/17);
California	Endorsement	PreK-12	<p><i>For Supplementary Authorization to teach either “Introductory Computer Science” or “Computer Science”:</i> Applicants must satisfy one of the following requirements:</p> <ol style="list-style-type: none"> 1. Official transcripts showing the completion of either 20 semester units (or 10 upper-division semester units) of non-remedial course work in the subject, completed at a regionally accredited community college, college, or university <ol style="list-style-type: none"> a. 20 semester units are required if a combination of upper- and lower-division units are completed b. The “Introductory” subjects require at least one course in each of the specified areas listed—the balance of the 10 or 20 units may be in any course within the subject category c. A grade of “C” or higher is required in every course used to meet this requirement 2. A collegiate major from a regionally-accredited college or university in a subject directly related to the subject to be listed. <p><i>Supplementary Authorization to teach “Introductory Computer Science”:</i> The teacher must verify at least one course in each</p>	California Commission on Teacher Credentialing: Supplementary Authorizations (8/2016) and Adding Teaching or Subject Areas to Existing Credentials

¹ Arkansas also offers an [Additional Licensure Plan \(ALP\)](#) option for teachers holding an elementary, middle or secondary license who do not have the CS endorsement on their license by the first day of the school year.

² A 4-12 certification, but at this time it allows teachers to teach high school-level courses. However, a school could employ a person holding this license to teach the 7th/8th grade coding block.

³ [ADE Computer Science Fact Sheet](#) lists non-CS licensure areas for high school CS courses that may fulfill graduation credit requirements

State	Certification or Add-On Endorsement	Grade Levels	Certification/Endorsement Course or Degree Requirements (Assessment Requirements Where Readily Available)	Sources
			<p>of the areas listed: computational thinking, computing practice and programming, computers and communication devices, and impacts of computing (e.g., social, ethical, legal) – impacts of computing topics may be included within courses that cover any of the other content areas.</p> <p><i>Supplementary Authorization to teach “Computer Science”:</i> computer programming, data structures and algorithms, digital devices, systems and networks, software design, and impacts of computing (e.g., social, ethical, legal) – impacts of computing topics may be included within courses that cover any of the other content areas.</p>	
Florida	Certification	K-12	<p>(1) Plan One. A bachelor's or higher degree with an undergraduate or graduate major in computer science or computer science education, or</p> <p>(2) Plan Two. A bachelor's or higher degree with 30 semester hours in computer science or computer science education to include credit in the areas specified below:</p> <p>(a) Computer applications, and</p> <p>(b) Computer programming.</p>	Fla. Admin. Code r. 6A-4.0121
Georgia	Certification and Endorsement	Varies by option	<p>Certificate: Details here</p> <p>Endorsement: To be eligible for the professional Computer Science Endorsement the applicant must hold a level 4 or higher renewable professional certificate in any P-12 or secondary (6-12) teaching field and complete other requirements outlined in GaPSC Rule 505-2-.14 ENDORSEMENTS.</p> <p>To be eligible for the Supplemental Induction Computer Science Endorsement the applicant must hold a level 4 or higher Induction P-12 or secondary (6-12) certificate in any teaching field and complete other requirements outlined in GaPSC Rule 505-2-.14 ENDORSEMENTS.</p> <p>In-Field Statement (See GaPSC Rule 505-2-.40 IN-FIELD ASSIGNMENT). An individual with the optional Computer Science endorsement has strengthened and enhanced competency levels for teaching computer science skills in grades 6-12. Each state-approved curriculum course, with specified certificate fields that are designated as in-field, may be found under Certification/Curriculum Assignment Policies (CAPS) on the GaPSC web site at www.gapsc.com.</p>	Ga Comp. R. & Regs. 505-2-.163 ; Ga Comp. R. & Regs. 505-2-.91

State	Certification or Add-On Endorsement	Grade Levels	Certification/Endorsement Course or Degree Requirements (Assessment Requirements Where Readily Available)	Sources
Idaho	Endorsement	6-12	20 semester credit hours of course work in Computer Science, including course work in the following areas: data representation and abstraction; design, development, and testing algorithms; software development process; digital devices systems network; and the role of computer science and its impact on the modern world.	IDAPA 08.02.02.022.09
Illinois	Endorsement	Middle or High School ⁴	Middle School: 18 semester hours High School: 24 semester hours with 12 at the upper division; Computer Science (038) test Both: Chosen from: Algorithms and data structures, principles, concepts, and methods of computing, problem solving in computing, programming techniques, and programming and computer languages. Coursework in computer applications will not be applicable.	Illinois State Board of Education Illinois Licensure, Endorsement, and Approval Requirements (Revised 3/8/17)
Kentucky	Endorsement	8-12	Email response from Kentucky Education Professional Standards Board (EPSB): "As Kentucky is a performance-based state, the EPSB does not specify the number of hours or specific courses that an [Educator Preparation Program] has to include in the curriculum leading to certification. The EPSB does identify specific content standards and teacher performance standards that have to be demonstrated within the programs. For example, for a program leading to a Computer Science Grades 8-12 Endorsement it must demonstrate alignment with the ISTE Standards for Computer Science Educators and with the Kentucky Teacher Performance Standards."	16 Ky. Admin. Regs. 2:010 , Section 4(5)(a); Kentucky Education Professional Standards Board
Louisiana	Certification and Endorsement	Both: 6-12	<i>For Computer Science Certification:</i> A total of 31 hours of combined general education and focus area coursework (plus 15 hours "Knowledge of the Learner and the Learning Environment, with the Emphasis on the Secondary School Student" and 18 hours of methodology and teaching coursework). <i>For Computer Science Endorsement:</i> For Individuals holding a valid early childhood certificate (e.g., PK-K, PK-3), elementary certificate (e.g., 1-4, 1-5, 1-6, 1-8), upper elementary or middle school certificate (e.g., 4-8, 5-8, 6-8), or special education certificate: EITHER	La. Admin Code. tit. 28, pt. CXXXI, § 211, 613, 655

⁴ Educator with Elementary education (K-9) or Special (K-12 or PK-21) certification holding Middle School CS Endorsement may teach grades 5-8. Educator with Secondary education (6-12) certification holding Middle School CS Endorsement may teach grades 6-8.

State	Certification or Add-On Endorsement	Grade Levels	Certification/Endorsement Course or Degree Requirements <i>(Assessment Requirements Where Readily Available)</i>	Sources
			<p>Passing score for Praxis secondary specialty area exam in the content area or 21 credit hours in the specialty content area OR Passing Praxis score for Principles of Learning and Teaching 7-12 exam.</p> <p>Individuals holding a valid secondary certificate (e.g., 6-12, 7-12, 9-12) or an all-level K-12 certificate (art, dance, foreign language, health, physical education, health and physical education, and music) must achieve one of the following:</p> <ol style="list-style-type: none"> 1. passing score for the Praxis secondary specialty area exam; and 2. 21 credit hours in the specialty content area. <p><i>For endorsement to teach Computer Literacy:</i></p> <ol style="list-style-type: none"> 1. Elementary or secondary certificate; and 2. 9 semester hours of coursework in educational technology or computer science. <p>For certified business education teachers who completed a data processing course and a word processing course that included computer applications, 6 semester hours of the requirement for computer literacy certification may be waived.</p> <p>A person who was successfully employed as a teacher of computer education for ≥ 3 years prior to September 1986, may be certified in computer literacy and have the authorization added to his/her Louisiana elementary or secondary teaching certificate, entitling him/her to teach computer literacy at the elementary or the secondary level, depending upon the level of certification.</p>	
Maryland	Certification	7-12	<p>Complete one of the following options:</p> <p>Earn a bachelor's or higher degree from an IHE with a major in the certification area OR Complete 30 semester hours or more of content course work taken at an IHE in the certification area</p> <p>In addition, candidates must complete 21 semester hours of professional education course work at an IHE at the appropriate age or grade level, and complete a teaching experience.</p>	<p>COMAR 13A.1 2.02.06</p>

State	Certification or Add-On Endorsement	Grade Levels	Certification/Endorsement Course or Degree Requirements (Assessment Requirements Where Readily Available)	Sources
Michigan	Endorsement – Being phased out		<p>Michigan has recently made the decision to phase out its computer science endorsement. To offer computer science and programming courses that require instructors to hold the computer science endorsement, the state will allow for administrator flexibility.</p> <p>Although this phase-out means that no new computer science endorsements will be issued on teaching certificates after July 1, 2026, teachers who currently hold the endorsement (or earn the endorsement prior to July 1, 2026) will continue to do so.</p> <p>Beginning for the 2017-2018 school year, administrators may choose to staff a computer science class with an already certificated teacher (at the appropriate grade range) who holds the computer science endorsement or who has demonstrated experience/skills in computer science OR request a permit for an individual whom has demonstrated experience/skills in computer science.</p> <p>In addition, the board of a local or intermediate school district may employ a full-time or part-time noncertificated, nonendorsed, teacher for grades 9-12 in certain subject areas, including computer science. A noncertificated, nonendorsed teacher must meet all the following requirements, in addition to any district-set requirements:</p> <ul style="list-style-type: none"> • Hold a bachelor's degree from an accredited postsecondary institution • Have a major or a graduate degree in the field of specialization in which he/she will teach • If the teacher desires to teach for more than 1 year, have passed both a basic skills examination and a subject area examination, if a subject area examination exists, in the field of specialization in which he/she will teach • In the 5-year period immediately preceding the date of hire, have not less than 2 years of occupational experience in the field of specialization in which he/she will teach. <p>The employing school district must verify that the person is assigned a mentor teacher with experience and expertise in the subject or specialty area that the permit is being issued.</p>	<p>Sarah-Kate LaVan, Office of Professional Preparation Services Michigan Department of Education; M.C.L.A. 380.1233b; Mich. Admin. Code R. 390.1146</p>
Mississippi	Endorsement	AP only	To teach AP Computer Science A, an educator must obtain a supplemental endorsement, which must be renewed every	Mississippi Department of

State	Certification or Add-On Endorsement	Grade Levels	Certification/Endorsement Course or Degree Requirements (Assessment Requirements Where Readily Available)	Sources
			five years with additional AP training. (AP Computer Science AB was discontinued following the May 2009 exam administration.)	Education, Licensure Guidelines K-12 , Appendix E (September 2015)
Montana	Endorsement	K-12	Per the Montana Office of Public Instruction website , a college or university must complete a university recommendation form verifying the candidate for the endorsement has completed the program requirements. The candidate must submit a transcript, and the college or university must submit the signed university recommendation form .	Mont. Admin. R. 10.57.412(2)
Nevada	Endorsement ⁵	K-12	Candidate must complete: A state board-approved program for teaching computer programming or computer science OR 12 semester hours in courses of study that include: <ul style="list-style-type: none"> • Methods for teaching the use of a computer or educational issues involved in the teaching of computers, or both • Methods for teaching computer programming • Instruction in at least two computer languages. 	NAC 391.196
New York	Certification	7-12	Individual Evaluation Pathway (for candidates who have not completed an approved teacher preparation program or do not hold valid teaching certification from another state/territory: <ul style="list-style-type: none"> • ≥ associate’s degree in Computer Technology 7-12 • ≥ 2 years’ work experience in Computer Technology • 30 semester hours: Content core in Computer Technology • 9 semester hours: Pedagogical core • 30 semester hours: Additional college coursework (liberal arts and sciences, CTE, pedagogy, etc.) Certificate Progression Pathway (for individuals who hold a valid New York State entry-level certificate (such as an Initial certificate, valid for 5 years, or Provisional certificate). They may progress to the advanced-level credential (such as a Professional or Permanent certificate):	New York State Education Department, Requirements for Professional Certificate, Computer Technology 7-12

⁵ This document specifies requirements for the Nevada endorsement to teach computer programming or computer science. State also makes available an “[Endorsement to teach concepts, skills and basic applications regarding computers](#)” and “[Endorsement to teach computer-based applications](#)” (both for courses/instruction on basic computer use, rather than computer science).

State	Certification or Add-On Endorsement	Grade Levels	Certification/Endorsement Course or Degree Requirements (Assessment Requirements Where Readily Available)	Sources
			<ul style="list-style-type: none"> 30 semester hours: College coursework 30 semester hours: Additional college coursework (liberal arts and sciences, CTE, pedagogy, etc.) 	
North Dakota	Endorsement	Varies ⁶	<p>Two endorsements: ME16 and ME 24 (ME = minor equivalent)</p> <p>ME16: Requires ≥ 16 semester hours of content-specific coursework beyond the introductory level. Issued for 5-year maximum period and is not renewable. Individuals wishing to maintain an endorsement after five years must complete requirements for the ME24.</p> <p>ME24: Requires ≥ 24 semester hours of content-specific coursework beyond the introductory level, as well as special methods of teaching in the content area.</p>	NDAC 67.1-02-03-06 ; North Dakota Education Standards and Practices Board, Content Area Minor Equivalency Endorsement: Computer Science Education
Ohio	Certification and Endorsement	Varies ⁷	<p><i>Certification: Computer Information Science:</i> Performance-based approach. From Ohio Department of Education Multi-Age Computer Information Science: 2007 Ohio Program Standards (Grades PreK-12): “Ohio requires performance-based programs and program reports which must include candidate performance assessments. Performance-based assessments should be appropriate for the standards including multiple forms of measurement, and measurement at multiple points over a candidate’s progression through a program.”</p> <p>In addition, for this and other preK-12 multi-age licenses, Academic major or equivalent in Computer Information Science. Per regulation, “Preparation in the teaching field shall constitute at least an academic major or its equivalent with sufficient advanced coursework in all areas to be taught as specified by the teacher preparation institution and approved by the Ohio department of education.”</p> <p><i>Endorsement: Computer/Technology:</i> Graduate level courses,</p>	Ohio Department of Education Multi-Age Computer Information Science: 2007 Ohio Program Standards (Grades PreK-12) and Supplemental Teaching License for Endorsement Areas; OAC 3301-24-05(A)(4), (B)(5) ; Jessica Mercerhill ,

⁶ From NDAC 67.1-02-03-06: “The minor equivalency endorsement will be issued for the same grade levels as the individual's primary licensure, the same as for minors transcribed by colleges of teacher education. Those whose primary licensure is secondary may use the endorsement to teach the new content area in grades seven through twelve. Those whose primary licensure is elementary (grades one through six or one through eight) or middle school (grades five through eight) may use the endorsement for additional content expertise at those levels but may not use it to teach at the high school level without a complete secondary endorsement.”

⁷ Computer Information Science certification is preK-12. Computer/Technology Endorsement may be added to any standard teaching certificate, or provisional or professional teaching license.

State	Certification or Add-On Endorsement	Grade Levels	Certification/Endorsement Course or Degree Requirements (Assessment Requirements Where Readily Available)	Sources
			only to be added to an existing license. Programs must align to the ISTE standards . Ohio does not specify credit hours required; institutions design programs to meet the standards. Current programs range from 12-18 semester hours.	Ohio Department of Higher Education; Ohio Department of Higher Education Ohio Educator Licensure Programs: Standards & Requirements Chart
Oklahoma	Certification	PreK-12	Regulation sets forth competencies that the candidate for licensure and certification in computer science must possess.	Okla. Admin. Code 210:20-9-172(42), 712:10-11-1 App. A
South Carolina	Certification and Endorsement	Varies ⁸	More details forthcoming	S.C. Code of Regulations R. 43-62 (V)(B)(11); South Carolina Department of Education Academic Certification Areas Issued
Texas	Certification and Endorsement	Varies ⁹	The following certifications are currently being issued: <ul style="list-style-type: none"> • Computer Science: Grades 8-12 • Technology Applications: EC (Early Childhood)-Grade 12 • Technology Applications (Grades 8-12): This certification is being phased out. A candidate must meet the requirements for a Technology Applications: Grades 8-12 certificate by August 31, 2018. All applications must be complete and received by the Texas Education Agency by October 30, 2018. After the phase-out, Texas will issue only the Technology Applications: Grades EC-12 certificate for 	Tim Miller , Texas Education Agency; Texas Education Agency, Becoming a Classroom Teacher in Texas; 19 TAC § 233.5 ; Texas State Board

⁸ Computer Science certification is for grades 9-12. No grade level specified for Specialized Endorsement in computer science.

⁹ Computer Science Certification is grades 8-12. Technology Applications is available Grades 8-12 (being phased out) and Early Childhood-12.

State	Certification or Add-On Endorsement	Grade Levels	Certification/Endorsement Course or Degree Requirements (Assessment Requirements Where Readily Available)	Sources
			<p>teaching certain technology applications courses that are focused on software applications.</p> <p>Regulation (Teacher Assignment Chart (PDF, 406 KB)) specifies the courses the holder of each certification is authorized to teach.</p> <p>Candidates for certification must:</p> <ul style="list-style-type: none"> • Obtain a bachelor’s degree • Complete an approved educator preparation program (EPP). Each EPP is required to offer coursework and training that is based on the educator standards adopted by the State Board for Educator Certification for each certificate. • Pass the appropriate TExES test (for Computer Science: Grades 8-12 or Technology Applications: Grades EC-12). TExES tests are state-specific exams based on Texas standards. Texas does not routinely accept the Praxis II tests for certification. <p>Texas has not identified computer science courses all computer science candidates must take as part of their EPP.</p> <p>Endorsement: For educators who already hold a Texas certificate, passing the appropriate test through the Additional Certification by Examination route will allow an educator to apply for the additional certificate for the computer science and the technology applications certificates listed above.</p>	for Educator Certification Approved Educator Standards for Computer Science (Grades 8-12), Technology Applications (Grades 8-12), Technology Applications (Grades EC-12); Teacher Certification Assignment Chart
Utah	Endorsement	Secondary (6-12)	<p>The following endorsements are available that require at least a bachelor’s degree in a related area. Each endorsement application below indicates the content coursework, pedagogy coursework, and industry certification required, as well as the courses the endorsement authorizes the instructor to teach.</p> <ul style="list-style-type: none"> • Computer Science - Level 1 • Computer Science – Level 2 • Database Development • Exploring CS • Geospatial Information Systems (GIS) 	Utah State Board of Education Information Technology Education: Educator Endorsements
Vermont	Endorsement	7-12	The Vermont Standards Board for Professional Educators has identified in rule the Knowledge Standards and Performance Standards the candidate for the Computer Science endorsement must demonstrate.	Vermont Standards Board for Professional

State	Certification or Add-On Endorsement	Grade Levels	Certification/Endorsement Course or Degree Requirements (Assessment Requirements Where Readily Available)	Sources
				Educators, Rule Series 5100, Rules Governing the Licensing of Educators and the Preparation of Educational Professionals
Virginia	Certification or Endorsement ¹⁰	6-12	<p><i>Computer Science Certification:</i> Candidate must have:</p> <ul style="list-style-type: none"> • Graduated from an approved teacher preparation program in computer science OR • Completed 36 hours of coursework in each of the following areas: <ul style="list-style-type: none"> ○ Mathematics ○ Statistics ○ Data structures and algorithm analysis ○ Introduction to computer systems ○ Application of computer technology ○ Programming <p><i>Computer Science Add-on Endorsement:</i> Candidate must have:</p> <ul style="list-style-type: none"> • A baccalaureate degree and an endorsement in a teaching area AND • Completed 18 semester hours of coursework in each of the following areas: <ul style="list-style-type: none"> ○ Data structures and algorithm analysis ○ Programming ○ Introduction to computer systems ○ Application of computer technology ○ Computer science. 	8 VAC 20-22-310
Washington	Endorsement ¹¹	K-12	Candidates must pass a test demonstrating they have attained specified knowledge and skills .	WAC 181-82A-202(1)(b); Washington Professional Educator

¹⁰ Virginia uses term “Endorsement” to refer to stand-alone teaching certification, and “Add-on Endorsement” to refer to additional area a certified teacher is authorized to teach.

¹¹ At this time, no teacher preparation programs are offering a pathway for candidates to obtain a stand-alone certification. Once a program is approved that meets competency requirements, candidates will be able to obtain stand-alone certification in computer science.

State	Certification or Add-On Endorsement	Grade Levels	Certification/Endorsement Course or Degree Requirements (Assessment Requirements Where Readily Available)	Sources
				Standards Board
West Virginia	Endorsement	preK-adult	Candidates must obtain minimum Praxis score. More details forthcoming.	W. Va. Code St. R. T. 126, Series 136, App. A; West Virginia Department of Education, Endorsements Eligible to be added to a Valid Professional Teaching Certificate by Taking a PRAXIS Exam
Wisconsin	Certification and Endorsement	Varies ¹²	<p><i>Computer Science License (Certification):</i> Candidate must complete a program major or major in computer science. A concentration is required to teach upper level high school computer science courses. Program must be approved by the Wisconsin Department of Public Instruction, and must incorporate the model academic standards.</p> <p><i>Computer Science Professional Teaching Permit (Endorsement):</i> Initial permit is issued for a 2-year period and may be renewed for a 5-year period. Candidate must</p> <ul style="list-style-type: none"> • Hold a bachelor’s degree in computer science from an accredited institution of higher education • Have at least 5 years’ professional experience in computer science • Complete an approximately 100-hour alternative teacher training program in the application of modern curricula • Demonstrate competency in the subject area/demonstrate successful completion of the 100-hour alternative teacher training program by passing a standardized exam. 	Shandowlyon Hendricks-Williams , Wisconsin Department of Public Instruction; Wis. Adm. Code s PI 34.29(2)(2) ; Wis. Adm. Code s PI 34.34(11)(a), (b) ; W.S.A. 118.192(b)
Wyoming	Endorsement	6-12	Two ways to add a computer science endorsement: Institutional Recommendation : No test is required. An applicant must complete an approved educator preparation program in the desired teaching field from a regionally	WY Rules and Regulations AI TSB Ch. 4 s 4 and 9 ; Wyoming

¹² Certification is “Early Adolescence through Adolescence” (grades 6-12). Endorsement is K-12.

State	Certification or Add-On Endorsement	Grade Levels	Certification/Endorsement Course or Degree Requirements (Assessment Requirements Where Readily Available)	Sources
			<p>accredited institution. According to the Professional Teaching Standards Board website, if the educator does not already hold a teaching endorsement at the grade level(s) of the added endorsement, the program must include student teaching and/or a practicum at the grade level(s) of the added-endorsement.</p> <p>Computer science programs must be aligned with ISTE standards.</p> <p>Demonstration of Competency: May be used only to add an endorsement at the grade level for which the applicant holds a valid and current license. Requirements include:</p> <ul style="list-style-type: none"> • 27 semester hours of coursework from a regionally accredited institution of higher education, in the specific content area for which the applicant is seeking an added endorsement. Nine of the 27 semester hours must have been completed in the last 5 years. ≤ 3 semester hours may be in pedagogy and must be at the grade level for which the applicant is already currently licensed • Passing score on Computer Science PRAXIS. 	Professional Teaching Standards Board website

Massachusetts: In addition, according to [Anne DeMallie](#) of the Massachusetts Department of Education, in March 2017 the state board of education released licensure revisions for public comment. These revisions, which are expected to be adopted in May 2017, include the addition of a 5-12 Digital Literacy and Computer Science (DLCS) teacher license. In June, public comment will be opened on the revised subject matter knowledge requirements for the revised licenses with adoption expected in August. Subsequently, educator preparation institutes will need to revise/add programs and seek Department approval.

Further, the state board of education is “revising the General Elementary and Early Childhood teaching licenses to include DLCS subject matter knowledge. Once approved, all new elementary or early childhood teachers will graduate with this knowledge (MA Educator Prep Institutes). [Anne DeMallie is] assembling an Implementation Panel of DLCS education stakeholders that will, among other tasks, identify, prioritize, and plan professional development for existing educators.”

Differentiating Certification/Endorsements for Type of CS Course

Education Commission of the States did not locate any states that differentiate the CS certification or endorsements required to teach a CS course focusing on the topics of interest (that is, computer systems, computer networks, data, algorithms, impact/ethics of technology, programming). Any differentiation in credentials required appears to be related whether a course is computer science versus computer applications (less technical).

Diversifying the Pool of CS Teacher Candidates

You expressed interest in state approaches to broaden the diversity of the CS teacher workforce to include greater numbers of female and minority teachers. Admittedly, many states' efforts are focused on increasing the number of qualified CS teachers generally. However:

Idaho: Idaho STEM Action Center Executive Director [Angela Hemingway](#) notes that when applicants apply for STEM Action Center professional development or [grants](#) (most of which are competitive), as possible additional points are awarded in the rubric if the educator and/or students fall into one of four focus groups: low SES, diverse race/ethnicity, rural, and/or female.