Preparing the **U**pper **M**idwest for **P**athways in **C**omputer **S**cience

PUMP-CS

Computer Science (CS) is a foundational skillset, impacting every field of study and every industry. Meeting current needs and investing in the future means offering CS classes as early as possible. Expanding the number of educators prepared to teach CS in grades K-12 and creating better access to high-quality CS coursework is the first step.

The Preparing the Upper Midwest for Pathways in Computer Science (PUMP-CS) Program, launched in 2010, is a teacher professional development program that promotes equitable access to high quality CS education for all K-12 students, with a focus on Wisconsin.

Teacher Professional Development:

PUMP-CS offers year-long professional learning programs, customized to Elementary Grades (K-5), Middle Grades (6-8) and High School (9-12), for both experienced and brand new CS teachers

Computer Science Teacher Community:

The program builds an effective and supportive CS teacher community throughout Wisconsin. Leveraging the strength of the collective, teachers can connect and collaborate to share best practices and expand their networks

Computer Science Curricula and Standards:

Through partnerships with the Wisconsin Department of Public Instruction and other organizations such as Code.org and Microsoft TEALS, PUMP-CS promotes the development of rigorous and relevant CS curricula and standards

Computer Science Education Research:

The data collected though the PUMP-CS program contributes to ongoing research on how to improve educating students in CS and how to best prepare CS teachers

Impact

Through the support of federal and private grants, PUMP-CS has been highly successful:

- Provided CS professional development to over 2,000 K-5 teachers, reaching 78,000 school children (48% female, 45% high need, 58% rural schools)

- Produced 115 new and reactivated high school CS teachers, across 52 school districts, more than doubling the number of high school CS teachers in Wisconsin

- Prepared teachers to launch new courses in more than 60 high schools and partnered with Code.org to reach more than 160 middle schools

- Secured $5M in funding from entities such as the National Science Foundation, Code.org, Google and Microsoft

Support

Support the PUMP-CS Program by donating to teachers' professional development:

What	Professional development curriculum, customized to grade levels: Elementary (ES), Middle (MS) or High School (HS)
When	Applications: Accepted year-round (ES), Due by April (MS/HS) Summer: 2-day workshop (ES) & 5-day workshop (MS/HS) Academic Year (MS/HS): Online, self-paced content & 4 days of in-person Saturday workshops (held quarterly)
Where	In-person sessions occur at Marquette University or on-site at the school
How much	ES: Operational* costs for in-person/on-site sessions MS/HS: $585/teacher** * Operational costs include meals, substitute teachers, etc. ** Scholarships are provided through various grant funds, pending MPS or Non-MPS teacher status

The PUMP-CS Program was created by Dr. Dennis Brylow, professor and vice chair of the Computer Science Department at Marquette University.

"Computer Science gives students vital 21st century skills. These skills strengthen local communities, national innovation, and opportunities for youth." — National Center for Women & Information Technology

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