

URBAN RESILIENCE, CERTIFICATE

The Urban Resilience Certificate draws on resilience expertise within the different departments of the School and builds upon a rich legacy at Penn. Rooted in Ian McHarg's layered-analysis methods of thinking holistically across systems and scales, the certificate offers a foundational program for "resilience by design." It includes a flexible set of courses offered at the Weitzman School of Design as well as at Wharton and the School of Engineering and Applied Science. The certificate is intended for professional graduate students enrolled at the Weitzman School of Design who are interested in adding an understanding of urban resilience, and how to design within a risky and uncertain world, to their list of educational qualifications.

The term resilience has different meanings in different domains. Often it is defined simply as the ability to deal with specific shocks or stresses. Resilience, for example, is easily equated with flood risk management. In the engineering world the term is generally used to mean the ability to withstand or bounce back from shocks or stresses. Such simple definitions not only run the risk of overlooking the distinctions between damage mitigation, resilience, and adaptation, but they also misrepresent the transformative potential of the concept. A broader definition of (urban) resilience, as the "capacity of individuals, communities, institutions, business, and systems within a city to survive, adapt, and grow no matter what kinds of chronic stresses and acute shocks they experience" (*100 Resilient Cities*), challenges us to think of urban systems as complex and adaptive. Designing in such systems forces designers to work across disciplines, at different (time-) scales simultaneously, and in both the social and physical domains. Designers must accept and embrace emergence and uncertainty. While the certificate program offers students an understanding of such challenges as climate change and inequality, and introduces concrete tools for analyzing, communicating, managing, and strategizing about these challenges "by design," it also urges students to re-think the position of the design disciplines in the face of fundamental uncertainty and lack of control. The program shows students how designers can have agency by participating in cities understood as complex adaptive systems.

For more information: <https://www.design.upenn.edu/all-degrees-certificates/urban-resilience> (<https://www.design.upenn.edu/all-degrees-certificates/urban-resilience/>)

Curriculum

A total of 5 course units are required to complete the Certificate program.

| Code | Title | Course Units |
|--------------------------------|---|--------------|
| Core Courses | | |
| LARP 7800 | Topics in Theory and Design | 1 |
| ARCH or LARP | Urban Resilience Studio ¹ | 2 |
| Electives | | |
| Select one from each category: | | 2 |
| <i>Tools</i> | | |
| CPLN 5310 | Sustainability and Environmental Planning | |
| HSPV 6210 | Heritage and Social Justice | |
| LARP 7400 | Topics in Digital Media | |

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|---------------------------------|---|
| OIDD/ BEPP 7610/ ESE 5670 | Risk Analysis and Environmental Management |
|---------------------------------|---|

Topics

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|-----------|----------------------------------|
| ARCH 7120 | Topics in Architecture Theory II |
| ARCH 7510 | Ecology, Technology, and Design |
| CPLN 6350 | Water Policy |
| ENMG 5030 | Topics in Energy Policy |

Total Course Units 5

¹ Or alternate studio approved by certificate director.

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2025 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.