

# BOSTON ARCHITECTURAL COLLEGE

SINCE 1889

## COURSE

Title:	<b>Sustainable Landscape Performance</b>
Faculty:	Hongbing Tang, hongbing.tang@the-bac.edu
Course number:	TSM2200_1
Course credits:	3.0
Time:	Spring 2024 Weekday 7:15-10:15pm online synchronous meeting Saturday 9:00-12:00pm field trip
Prerequisites:	None



Photos by H. Tang, L. Chen & J. Kozikowski

## COURSE OVERVIEW

Landscape performance is a vital part of landscape architectural research, education, and practice. Landscape performance evaluation is used to assess the impact of a multi-benefit landscape solution by quantifying environmental, social, and economic outcomes of a built project related to its goals and objectives. Evaluating the performance of built projects and learning from those past impacts can inform goals and design on future projects.

This course will provide students with an understanding of landscape performance and help them gain the basic skills they need to plan for, assess, and convey the impact of landscape projects. Students will be introduced to the concept of landscape performance and methodology in measuring various outcomes. They will examine Landscape Architecture Foundation (LAF)'s Case Study Investigation (CSI) series as precedent studies. Subsequently, students will gain knowledge and learn methods on how to measure environmental, social, and economic benefits of built projects. Throughout the semester, students will work on exemplary built projects in the Boston context to conduct landscape performance evaluation and produce a final project report. They will take human research protection training prior to the start of the term project.

## REQUIRED MATERIALS AND SKILLS

Computer with internet connection

Software and apps used for landscape performance evaluation, such as GIS, AutoCAD, [i-Tree](#), [iNaturalist](#), etc.

Filed trip essentials (Digital camera or phone camera, sketchbook, pens, measuring tape, thermometer for temperature measurement, etc.)

Human subject research protection training

## BOOKS AND REFERENCES

ARUP. *Cities Alive: Rethinking Green Infrastructure*, 2014.

<https://www.arup.com/perspectives/publications/research/section/cities-alive-rethinking-green-infrastructure>

Calkins, Meg. *The Sustainable Sites Handbook: A Complete Guide to the Principles, Strategies, and Best Practices for Sustainable Landscapes*. Hoboken, NJ: Wiley, 2012.

Calkins, Meg. *Materials for Sustainable Sites: A Complete Guide to the Evaluation, Selection, and Use of Sustainable Construction Materials*. Hoboken, NJ: Wiley, 2009. eBook

[https://reserves-the-bac-edu.proxy.the-bac.edu/Permanent Reserve/Materials for Sustainable Sites.pdf](https://reserves-the-bac-edu.proxy.the-bac.edu/Permanent%20Reserve/Materials%20for%20Sustainable%20Sites.pdf)

Conrad, Pamela. "Climate Positive Design: Going Beyond Neutral". BAC 2023 Spring Lecture Series. <https://www.youtube.com/watch?v=1WQWNwsnMWM>

Landscape Architecture Foundation. *Landscape Performance Series*.

<http://lafoundation.org/research/landscapeperformance-series>.

Landscape Architecture Foundation. *Evaluating Landscape Performance: A Guidebook for Metrics and Methods Selection*. 2018.

<https://www.landscapeperformance.org/sites/default/files/LAF-Evaluating-Performance-Guidebook.pdf>

Landscape Architecture Foundation. *Landscape Performance Series Reading & Resource List*.

<https://www.landscapeperformance.org/sites/default/files/Resources-for-Educators-Combined-Readings.pdf>

Sorvig, Kim, and J. William Thompson. 2018. *Sustainable Landscape Construction: A Guide to Green Building Outdoors*. Third Edition. Washington, DC: Island Press.

[https://reserves-the-bac-edu.proxy.the-bac.edu/Permanent Reserve/PrintReplacement/Sustainable Landscape Construction A Guide to Green Building Outdoors2007.pdf](https://reserves-the-bac-edu.proxy.the-bac.edu/Permanent%20Reserve/PrintReplacement/Sustainable%20Landscape%20Construction%20A%20Guide%20to%20Green%20Building%20Outdoors2007.pdf)

Note:

Weekly readings will be posted on Moodle.

# COURSE EXPECTATIONS

**Participation:** Participation is expected regularly in class discussions. Participation can be shown through engagement and questioning during lectures, by sharing research work and discussing with the instructor about projects, homework, and course ideas.

**Deliverables:** Upload weekly assignments and final project as PDF files to Moodle by the deadlines.

**Attendance** is mandatory. Only one excused absence will be considered, with prior notification and consideration to the instructor. Additional absences will be reflected in your performance and grade.

**Four unexcused absences result in class failure.**

## PROFESSIONAL CRITERIA

### LAAB CRITERIA:

Note: items in grey are not covered in this course

#### **History, theory, philosophy, principles, and values**

- design history
- design theory
- criticism
- sustainability, resiliency, stewardship
- health, safety, welfare

#### **Design processes and methodology**

- critical thinking
- analysis
- ideation
- synthesis
- site program
- iterative design development
- design communication

#### **Systems and processes—natural and cultural (related to design, planning, and management)**

- plants and ecosystems sciences
- built environment and infrastructure
- human factors and social and community systems
- human health and well-being

#### **Communication and documentation**

- written communication
- oral communication
- visual and graphic communication
- design and construction documents
- numeracy, quantitative problem-solving, and communication
- community and client engagement

### **Implementation**

- construction technology and site engineering
- site materials
- use and management of plants and vegetation
- policies and regulation

### **Computer applications and advanced technologies**

- visualization and modeling
- communication (conceptual and construction drawings)
- geospatial analysis

### **Assessment and evaluation**

- site assessment
- pre-design analysis
- landscape performance
- post-occupancy evaluation
- visual and scenic assessment

### **Professional practice**

- values
- ethics
- practice
- construction administration

### **Research and scholarly methods (for master's-level degree programs)**

- quantitative and qualitative methods
- establishing a research hypothesis
- framing research questions
- literature/case study review/precedent review
- research integrity and protection of human subjects
- communication of research

## **COURSE GOALS**

The primary goal of this course is to provide students with an understanding of the importance of landscape performance and explore landscape performance evaluation methods to demonstrate the environmental, social, and economic benefits of sustainable landscapes.

## **COURSE OBJECTIVES & LEARNING OUTCOMES**

- To understand the concept and implications of landscape performance for the contemporary practice of landscape architecture
- To be aware of successfully built projects and design practices demonstrating exemplary landscape performance
- To demonstrate proficiency in developing landscape performance assessment strategies and researching eco-technology processes

- To explore both qualitative and quantitative methods in evaluating landscape performance
- To communicate landscape performance assessment in effective visual and written representation
- To be prepared to advocate for sustainable planning and design strategies, operative landscapes in academic and professional work

## WEEKLY SCHEDULE subject to change

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### **Week 1: Wednesday, Jan. 24**

- Course introduction and expectations
- Class introduction
- Introduction to Landscape Performance Assessment

### **Week 2: Wednesday, Jan. 31**

- Research Methods Overview - Qualitative and Quantitative
- Introduction the “case study” method for course learning
- Landscape performance assessment LAF CSI precedent studies
- Introduction to term project for landscape performance
- Reading discussion

### **Week 3: Wednesday, Feb. 7**

- Guest Lecture - Megan Barns (Landscape Architecture Foundation)
- Social benefit assessment
- Precedent studies
- Reading discussion

### **Week 4: Wednesday, Feb. 14**

- Economic benefit assessment
- Precedent studies
- Reading discussion
- Term Project Progress<sup>1</sup> due before class & in-class review

### **Week 5: Wednesday, Feb. 21**

- Guest Lecture – Rick Lawless (Complete Streets USA)
- Environmental benefit assessment
- Precedent studies
- Reading discussion

### **Week 6: Wednesday, Feb. 28**

- Special Topic: Human Subject Research

- IRB overview and application process
- Human subject protection training
- Consent forms
- Reading discussion

**Week 7: Wednesday, Mar. 6**

- Special Topic: Survey & Interview Designs
- Survey & interview questions
- Discussion

**Week 8: Wednesday, Mar. 13**

- Guest Lecture - Public Space Public Life (PSPL) method - Sarah Yasuda (BAC librarian)
- Discussion on PSPL
- Term Project Progress2 in-class review

**Week 9: Wednesday, Mar. 20**  
**No Class. Spring Break**

**Week 10: Wednesday, Mar. 27**

- Guest Lecture - Skip Burke on Fan Pier Parks (Richard Burke Associates)
- Guest Lecture - John Amodeo on Christian Science Plaza (Arcadis/IBI Group)
- Reading discussion

**Week 11: Wednesday, April. 3**

- Special Topic: Sustainable Stormwater Management Assessment
- Stormwater runoff estimate models, design details, and real-life examples
- In-class Exercises
- Reading discussion

**Week 12: Field Trip 1 - Saturday, April 13**

- Boston Seaport District and Rose F. Kennedy Greenway Parks
- Field trip report (extra credits)

**Week 13: Wednesday, April 17**

- Special Topic: Therapeutic and Restorative Environments
- Theoretical perspective & assessment
- Student-led precedent studies
- Reading discussion
- Term Project Progress3 due

**Friday, April 19**

Boston City Hall Plaza site visit (led by Mauricio Gomez from Sasaki)

**Week 14: Field Trip 2 - Saturday, April 27**

- Christian Science Plaza site visit (led by James Kros from Arcadis/IBI Group)

- Spaulding Rehab Hospital site investigation  
Field trip report (extra credits)

**Week 15: Wednesday, May 1**

- Term Project Progress Review
- Working Session

**Week 16: Wednesday, May 8**

- Term Project Final Review
- Conclusions/summations/takeaways
- Term Project Final Report due

**COURSE GRADING CRITERIA:**

Class Participation and Effort	20%
Assignments (precedent studies & student-led lecture)	25%
Reading	15%
Term Project Progress Work	15%
Term Project Final Report	25%

**COURSE/BAC EXPECTATIONS AND POLICIES:**

Attendance Policy

- Students are expected to attend all classes
- A student's grade will be lowered for unexcused absences. An unexcused absence is defined as an absence for which the student did not receive permission in advance from the instructor.
- For 15-Session classes, four unexcused absences are grounds for failing the course.
- In the event of illness or other situation resulting in excessive absences, the student must notify the Office of Student Affairs.
- Work-related obligations and/or deadlines are not valid excuses for absence or incomplete work.

Grading

The BAC's Grade Definition Chart is included in this Syllabus. Students should note that in order to maintain Satisfactory Educational Progress (SEP), MLA students are required to maintain minimum GPAs of 2.7 overall and 2.7 for studio courses and BLA students are required to maintain minimum GPAs of 2.5 overall and 2.5 for studio courses. Failure to maintain SEP may result in additional work assigned, repeating a course or semester, or withdrawal from the program.

## BAC Grade Definitions

Grade	4.0 Scale	0-100 Scale	Definition
<b>A</b>	<b>4.0</b>	<b>94 – 100</b>	<b>Excellent</b> The work exceeds the requirements of the course and demonstrates complete understanding of course goals. In addition, assignments exhibit a level of critical thinking that has allowed the student to demonstrate creative problem solving. Ideas and solutions are communicated clearly, showing a high level of attention and care.
<b>A-</b>	<b>3.7</b>	<b>90 – 93</b>	
<b>B+</b>	<b>3.3</b>	<b>87 – 89</b>	
<b>B</b>	<b>3.0</b>	<b>84 – 86</b>	<b>Good</b> The work meets the requirements of the course and demonstrates understanding of course goals. The assignments reflect an ability to solve problems creatively, but solutions demonstrate inconsistent depth and critical thinking ability. Ideas and solutions are communicated effectively, but may lack the clarity and depth one sees in excellent work.
<b>B-</b>	<b>2.7</b>	<b>80 – 83</b>	
<b>C+</b>	<b>2.3</b>	<b>77 – 79</b>	
<b>C</b>	<b>2.0</b>	<b>74 – 76</b>	<b>Fair</b> The work meets the minimum requirements of the course and reflects understanding of some course goals but is lackluster. The assignments exhibit a basic problem-solving ability, but the process and solutions lack sufficient depth and demonstrate a need for greater critical thinking. Ideas are communicated ineffectively, showing a lack of attention to detail and a decided lack of clarity or depth.
<b>C-</b>	<b>1.7</b>	<b>70 – 73</b>	
<b>D</b>	<b>1.0</b>	<b>60 – 69</b>	<b>Poor</b> The work barely meets the minimum requirements of the class. Assignments lack depth and display a minimal understanding of course goals. Ideas are presented with little or no detail or elaboration. Course guidelines are often not followed.
<b>RF</b> Repeat/ Fail	<b>0.0</b>	<b>0 - 59</b>	<b>Unacceptable or missing work</b> <b>Repeat/Fail.</b> The work neither satisfies the requirements of the class nor demonstrates understanding of course objectives. The presentation of work is unprofessional and/or incomplete. Overall, the student shows insufficient understanding of the course requirements. Poor attendance or violation of academic integrity policy may also be factors.
<b>I</b>			<b>Incomplete</b>
<b>NF</b>	<b>0.0</b>		<b>Failure due to non-attendance</b>
<b>W</b>			<b>Withdrawn</b>

### Course Policies and Procedures

#### Late Policy

Assignments are due no later than the date and time assigned. Students should contact the instructor in advance if, for a valid reason work will be submitted late.

#### Student Responsibility

A student should...



... complete assignments to the best of his or her ability, and submit them on time. In the event that circumstances require a late submission, the student should contact the instructor before the assignment is due and appropriate accommodation may be considered. In the event of an emergency (e.g., medical, personal), the instructor and student advisor should be contacted at the earliest possible time.

... engage actively with the ideas presented and with fellow students. Wide-ranging opinions and ideas are encouraged, and a civil, respectful courtesy for everyone else is required.

... think deeply. This course addresses challenging subjects and thought-provoking material, and everyone should be prepared to reflect and consider deeply-held assumptions.

#### Mid-Semester Warning

Students will receive a progress assessment at mid-semester. Students who do not perform up to expectations will receive a Mid-Semester Warning; a copy of the warning will be kept in the student's file.

#### Writing Standards

Writing in this course should meet the standard of accuracy and clarity of expression that is expected of design professionals. Appropriate grammar, correct spelling, and the ability to construct a clear and well-organized statement or argument are expected.

#### To Document Correctly:

Be sure to attribute all outside pieces of information to their original sources. In addition, students should keep in mind that even if it is required to paraphrase, there is a need to cite that material. Use appropriate bibliographic and webliographic references for quoted and paraphrased material. An excellent resource for proper format and usage guidelines is Kate L. Turabian's *A Manual for Writers of Term Papers, Theses, and Dissertations*.

Samples for a Bibliography:

[http://www.press.uchicago.edu/books/turabian/turabian\\_citationguide.html](http://www.press.uchicago.edu/books/turabian/turabian_citationguide.html) A Guide for Writing Research Papers: <https://owl.english.purdue.edu/owl/>

The Learning Resource Center can provide professional writing advice in structuring an argument and in correct documentation. Students can make an appointment with a writing tutor at [writingcenter@the-bac.edu](mailto:writingcenter@the-bac.edu) or by calling 617.585.0174. Several downloadable guides to writing, research, and citation are available at <http://www.the-bac.edu/resources/academic-services/learning-resource-center>.

#### Plagiarism

Plagiarism is representing someone else's words or ideas as their own. On occasion students violate, often innocently, rules for citing and referencing source material; this is still plagiarism. This problem has been exacerbated by the ready availability and frequent use of online resources. To report on research, it is incumbent on the student to know the difference between a direct quotation and paraphrasing (both are appropriate, but require citation), and paraphrasing and plagiarism.

There are two types of plagiarism: intentional and accidental. Each is serious and will not be tolerated.

*Intentional Plagiarism* is the deliberate attempt to submit someone else's work as their own. This includes turning in:

- A paper copied from a book or magazine
- A paper written (in total or in part) by another person

The first time a student commits this level of plagiarism, they will receive an "F" for the assignment.

The second offense will receive an “F” in the course. This policy covers all assignments, including discussion board posts.

*Accidental Plagiarism* is the result of misunderstanding or misapplying the rules of documentation. It includes using an idea from a source without naming the source, using the exact words of a source without quotation marks, or following the words and structure of the source too closely as one is paraphrasing. Errors resulting from a misapplication or unawareness of the rules of documentation may result in the grade of “F” for the paper in question.

#### Academic Integrity

As stated in the [Campus Compact](#), the BAC expects intellectual activities to be conducted with honesty and integrity. Work submitted or presented as part of a BAC course:

- Shall be the original creation of its author;
- Is allowed to contain the work of others so long as there is appropriate attribution; and
- Shall not be the result of unauthorized assistance or collaboration.

Failure to adhere to these guidelines is academic dishonesty, and calls into question the student and the college. Visit the BAC [Academic Integrity Statement](http://the-bac.edu/resources/academic-services/learning-resource-center/academic-integrity-statement) for additional information: <http://the-bac.edu/resources/academic-services/learning-resource-center/academic-integrity-statement>

#### Copyright Compliance Notice

Courses may contain material used in compliance with the U.S. Copyright Law, including the TEACH Act and principles of "fair use." These materials are made available for the educational purposes of students enrolled at the Boston Architectural College. No further reproduction, transmission, or electronic distribution of this material is permitted.

Course materials may not be saved, copied, printed, or distributed without permission other than as specified to complete course assignments. Use of the course materials is limited to enrolled class members for the duration of the course only.

#### Diversity Statement

The Boston Architectural College is committed to promoting a community that celebrates, affirms, and vigorously pursues inclusiveness in all its forms. (Full text at: <http://the-bac.edu/about-the-bac>).

#### Disability Services

The BAC offers reasonable accommodations to students who otherwise cannot reach their academic potential due to a learning disability, physical impairment, medical/psychological condition, or unforeseen circumstances that may arise during the course of their studies. All forms of accommodation are tailored specifically to the individual student and meet guidelines for educational benefit and academic consistency. Accommodations must maintain academic integrity and a realization of required learning objectives. Students who are eligible for accommodations are strongly encouraged to notify the instructor. Students must have appropriate documentation on-file.

The Boston Architectural College complies with the Americans with Disabilities Act and Section 504 of the Rehabilitation Act. If you are a student who is seeking accommodations based on a documented disability and/or diagnosis, please contact Disability Services to discuss reasonable accommodations. The Disability Services Coordinator can be reached by emailing [DisabilityServices@the-bac.edu](mailto:DisabilityServices@the-bac.edu). The Disability Services office is located in 320 Newbury Street on the first floor. While you may activate accommodations at any time during your academic career at the BAC, it is highly encouraged to schedule a meeting as soon as possible.

More information can be found at this link: <http://www.the-bac.edu/students/offices-and-resources/academics/academic-advising/disability-services>.