

**COURSE SYLLABUS
FALL 2017**

**EAS 59100 – Forecast Verification
CIVL 4247 & 4251**

Instructor: Mike Baldwin
(CIVL 4267A, baldwin@purdue.edu)
Office hours: by appointment

OVERVIEW

Evaluation of predictions is a key part of the forecast process. This can provide guidance on how to improve future forecasts, estimates of the economic value of forecast information, and ways of monitoring the performance of a forecast system. The objective of this course is for students to gain understanding and practical experience with methods of measuring the performance of weather forecasts. In this course, we will examine the statistical framework for forecast evaluation, some commonly-used techniques, as well as recent developments in methods for evaluating spatial and probabilistic predictions. Through homework, group discussions, a midterm exam, and semester research projects, students will be provided with hands-on experience to allow increased understanding of these verification techniques.

Learning outcomes

Students in this course will:

- develop their own state-of-the-art tools for evaluating a variety of forecasts
- communicate clearly and effectively via formal scientific reports, interpretation of verification information, and group discussions of relevant papers
- apply proper quantitative methods for evaluating predictions weather and climate
- understand the statistical basis and sensitivity of modern verification methods

Students in this course will typically receive weekly assignments that correspond to journal articles and/or class discussions on a variety of topics. These homework assignments could consist of: reviews, analyses, and numerical calculations. The following topics may be covered: historical overview, statistical framework, categorical forecasts, continuous forecasts, probabilistic forecasts, score sensitivity, confidence intervals, climate model evaluation, value estimation, spatial methods, and recent advances in this field. Computing aspects of this discipline will be emphasized.

Use email and office hours for questions. In all email messages, please use “EAPS 591” in the subject line.

Recommended texts:*Statistical Methods in the Atmospheric Sciences*, Daniel Wilks*Forecast Verification: A Practitioner's Guide in Atmospheric Science*, Ian Jolliffe and David Stephenson**GRADING**

Grades will be determined via a midterm exam, homework, and a semester project. For the project, students will be expected to present the results of their project during class and also submit a written report.

Homework:	1/3
Midterm Exam:	1/3
Project:	1/3

Late assignments: 10% of assignment grade will be taken away for each day that an assignment is turned in beyond the due date/time. For example, 3 days late will result in a maximum score of 70%.

Semester letter grades will be assigned using the following scale, based upon the semester average percentage of total points calculated using the categories above.

Semester average (%)	Letter grade
ave \geq 95%	A+
91 \leq ave < 95	A
89 \leq ave < 91	A-
85 \leq ave < 89	B+
81 \leq ave < 85	B
79 \leq ave < 81	B-
75 \leq ave < 79	C+
71 \leq ave < 75	C
69 \leq ave < 71	C-
65 \leq ave < 69	D+
60 \leq ave < 65	D
ave < 60%	F

Academic misconduct

The Purdue Honor Pledge states “As a boilermaker pursuing academic excellence, I pledge to be honest and true in all that I do. Accountable together - we are Purdue.”

Incidents of suspected academic misconduct will result in a grade of zero on the assignment for the first offense and a failing grade (F) for the course for the second offense. Each incident will be reported to the Dean of Students.

Academic misconduct of any kind will not be tolerated. Academic misconduct is defined as “dishonesty in connection with any University activity”. This includes cheating, plagiarism, knowingly furnishing false information, or aiding (directly or indirectly) other parties in committing academic misconduct. Plagiarism is a special kind of academic dishonesty in which one person steals another person's ideas or words and falsely presents them as the plagiarist's own product. Some specific examples of academic misconduct include:

- doing class assignments for someone else
 - fabricating data
 - using the exact language of someone else without the use of quotation marks and without giving proper credit to the author
 - using images/text obtained from external sources (such as a website) without proper citation
 - presenting the sequence of ideas or arranging the material of someone else, even though such is expressed in one's own words, without giving appropriate acknowledgment
-

SYLLABUS INFORMATION FROM THE OFFICE OF THE PROVOST

- Everyone is asked to prominently include the Purdue Honors Pledge on their syllabus, as well as exams and key assignments. The statement is “As a boilermaker pursuing academic excellence, I pledge to be honest and true in all that I do. Accountable together - we are Purdue.” You may use this link to a web page for Purdue’s Honor Pledge in your syllabi.
- On the recommendation of the University Senate, we are also asked to share the following on your syllabus about resources for mental health.
 - o CAPS Information: Purdue University is committed to advancing the mental health and well-being of its students. If you or someone you know is feeling overwhelmed, depressed, and/or in need of support, services are available. For help, such individuals should contact Counseling and Psychological Services (CAPS) at (765)494-6995 and <http://www.purdue.edu/caps/> during and after hours, on weekends and holidays, or through its counselors physically located in the Purdue University Student Health Center (PUSH) during business hours.
- Per our Student Bill of Rights, all instructors will provide course objectives, requirements, and grading policies for their courses, typically as part of the syllabus. A sample syllabus format, listing of campus resources, and the Purdue University Course Procedures can be found at the Center for Instructional Excellence (CIE) or if you prefer as videos.
- Your course syllabus should provide clarity about your attendance policy.
 - o Our student regulations regarding attendance are lengthy, providing clear guidance only for cases of bereavement or military leave. In all other cases, the concluding language sets the general expectation that “[t]he University expects both students and their instructors to approach problems with class attendance in a manner that is reasonable”.
 - o Expect some absences for a variety of reasons. Make it clear that the student bears the responsibility of informing the instructor in a timely fashion, when possible.
 - o The general expectation of instructors is to try to accommodate the student either by excusing the student or allowing the student to make up work, when possible.
 - o If any instructor has questions about student absences, they should contact the Dean of Students Office at odos@purdue.edu or call 765-494-1747.
 - o Note that PUSH does not provide students with “excuse” notes. Unless the student is acutely ill, there is nothing for PUSH to verify. Instead, encourage students to communicate with you as soon as possible, in the event of an illness, so that you can work together for a positive solution to their absence. In situations where a student is hospitalized or may need to go home for medical care, the Dean of Students will notify the student’s faculty.
- Every syllabus should provide is clarity on how a student earns their grade. Items to include are:
 - o What type(s) of student work (e.g., exams, homework, quizzes, projects, term papers, etc.) are used to determine the grade, and what is the contribution of each type to the determination of the grade?
 - o What are the numerical ranges for each letter grade?
 - o Whether late assignments will be accepted and any grading penalties for late assignments.
 - o For certain classes, how is team based work evaluated?
 - o What is the effect of academic dishonesty on a student’s grade?
- Purdue University is committed to maintaining a community which recognizes and values the inherent worth and dignity of every person; fosters tolerance, sensitivity, understanding, and mutual respect among its members; and encourages each individual to strive to reach his or her own potential. In pursuit of its goal of academic excellence, the University seeks to develop and

nurture diversity. The University believes that diversity among its many members strengthens the institution, stimulates creativity, promotes the exchange of ideas, and enriches campus life.

Purdue's nondiscrimination policy can be found at:

http://www.purdue.edu/purdue/ea_eou_statement.html.

- As we continue to promote academic integrity, consider adding this sentence to your syllabus.

- o Academic integrity is one of the highest values that Purdue University holds. Individuals are encouraged to alert university officials to potential breaches of this value by either emailing integrity@purdue.edu or by calling 765-494-8778. While information may be submitted anonymously, the more information that is submitted provides the greatest opportunity for the university to investigate the concern.

- The Disability Resource Center (DRC) is a resource for students and instructors. Students may present a "Letter of Accommodation" to you at any point in the semester. Should you have questions about accommodations, please contact the DRC at: 494-1247. You may also visit the DRC at drc@purdue.edu.

- If you require a text, be sure that your students understand your expectations for its use. In MyPurdue; look for "My Textbooks" under the Faculty Tools quick links so you can verify the materials you have specified for your courses. Amazon is Purdue's official book store, meaning we must share with Amazon the courses materials used in our courses.

- Consider adding your syllabus to Purdue Course Insights. This new site is a syllabus archiving system where students and advisors can conveniently view course syllabi from previous semesters. Developed in response to a request from Purdue Student Government, the latest addition to myPurdue makes it easy for faculty to make their syllabi available to the University community.

Fall Semester 2017

1. Key dates

- Classes begin on August 21, 2017.
- Monday, September 4 is Labor Day.
- ICP Reporting is due September 15.
- October 9-10 Fall Break.
- The last day of class is December 9.
- Finals are from December 11 through December 16.
- Grades are due by 5:00 pm Tuesday, December 19.
- Commencement is December 17.

2. Blackboard Learn and the Faculty Tab at MyPurdue contain important information. For your course roster and grade roster use Blackboard Learn and the “preferred name” list. This will ensure you have the list with the names that students prefer you use to address them. Under the Faculty Tab at My Purdue you can find meeting times, and rooms. You will have to log in using your career account and password, and be FERPA certified.
3. Increasingly, course materials appear on commercial web pages, including answer keys to old exams or homework. In general, notes are “considered to be ‘derivative works’ of the instructor’s presentations and materials, and they are thus subject to the instructor’s copyright in such presentations and materials.” As such, they cannot be sold or bartered without your express written permission. See the policy with regard to commercial note taking in classes which you may wish to include in your syllabus (see part J).
4. ITAP teaching & learning technologies provide a wide range of support. This includes help on setting up Blackboard Learn, requesting email lists for your courses, and many other programs, such as Signals, BoilerCast, iClicker, and much more. Besides workshops and training sessions, email tlt-consulting@purdue.edu for individual consultations.
5. Again, review the attendance and grief absence policy the regulation, and consider its application in your class. The University recognizes that the learning mission can be enhanced significantly by extracurricular experiences. Students participating in University-sponsored activities should be permitted to make up classwork missed as a result of this participation. Ultimately students are responsible for all required coursework and bear full responsibility for any academic consequences that may result due to absence.
6. Instructions for the Initial Course Participation (ICP) Reporting will be sent to you no later than the first day of the term from your departmental schedule deputy. If you use Blackboard Learn for at least one assignment or test due before your ICP reporting date, and the student completes it, ICP will automatically be reported for you. If you have questions about this deadline, you may email the Office of the Registrar at registrar@purdue.edu or visit ICP Reporting for a list of Q&A’s.
7. Does your course involve an industry sponsored class project? If yes, new procedures have been developed for handling the agreements, payments and intellectual property rights. Please review the specifics at the following web site:
<http://www.purdue.edu/legalcounsel/resources/Projects.html>
8. For additional questions or assistance with a specific industry-sponsored student class project, please email Legal Counsel at legalcounsel@purdue.edu . You can also contact Ken Sandel (765) 494-1063 or sandel@purdue.edu .

Guidelines for Academic Integrity

In a society that increasingly questions the value of higher education upholding academic integrity takes on added significance. The time and effort necessary to champion high expectations of academic integrity are well understood, and the University is in full support of faculty and instructors who uphold these standards. Please consider these five steps for your class.

1. Define academic dishonesty for your class in your syllabus. A faculty guide is located at https://www.purdue.edu/odos/osrr/resources/documents/responding_to_academic_dishonesty.html. I encourage you to emphasize this part of your syllabus on the first day of class. You also may wish to revisit your expectations at key junctures of the semester (e.g., before an exam or term project).
2. Provide greater clarity to students about what is acceptable and unacceptable. Some classes routinely use team assignments and encourage collaboration for projects, labs, or homework. Yet at other times of the term, students are expected to work independently. Be very clear about your expectations for each assignment.
3. Students should be told prior to – and as part of – the instructions on each test what is acceptable in terms of notes, phones, calculators, etc. From class to class our practices vary widely so, here again, it's important to be very clear in your expectations.
4. Fourth, define what penalties that be enforced a student is caught. One example might be:

Incidents of academic misconduct in this course will be addressed by the course instructor and referred to the Office of Student Rights and Responsibilities (OSRR) for review at the university level. Any violation of course policies as it relates to academic integrity will result minimally in a failing or zero grade for that particular assignment, and at the instructor's discretion may result in a failing grade for the course. In addition, all incidents of academic misconduct will be forwarded to OSRR, where university penalties, including removal from the university, may be considered.

5. At a minimum, if you penalize a student's grade by deducting points, report the instance of scholastic dishonesty to the Office of Student Rights and Responsibilities (OSRR). One reason it is important to report all incidents to ensure consistent treatment both at the course level and across the institution. Staff members from OSRR are available to consult on an individual basis. Their office is in B50 of Schleman Hall, and their phone is 494-1250.

6. Finally, faculty and instructors have raised concerns about student academic integrity. At the same time, students have indicated that some instructors appear reluctant to uphold academic standards. I ask that you be clear in your syllabus on the steps you will take in your class to uphold academic integrity. In addition, students should be made aware that they can report issues of academic integrity that they observe, either through the Office of the Dean of Students (purdue.edu/odos), call 765-494-8778 or email integrity@purdue.edu.

EMERGENCY PREPAREDNESS

Prior to the first day of class, obtain a copy of the building emergency plan for each building in which you will be teaching. Note the evacuation route and assembly area, as well as the shelter in place locations. BEPs are located on the Emergency Preparedness website http://www.purdue.edu/ehps/emergency_preparedness/

On the first day of class, the following information is required to be presented to students: As we begin this semester I want to take a few minutes and discuss emergency preparedness. Purdue University is a very safe campus and there is a low probability that a serious incident will occur here at Purdue. However, just as we receive a “safety briefing” each time we get on an aircraft, we want to emphasize our emergency procedures for evacuation and shelter in place incidents. Our preparedness will be critical IF an unexpected event occurs!

Emergency preparedness is your personal responsibility. Purdue University is actively preparing for natural disasters or human-caused incidents with the ultimate goal of maintaining a safe and secure campus. Let’s review the following procedures:

For any emergency call 911.

There are nearly 300 Emergency Telephone Systems throughout campus that connect directly to the Purdue Police Department (PUPD). If you feel threatened or need help, push the button and you will be connected to the PUPD.

If we hear a fire alarm we will immediately evacuate the building and proceed to _____ (location).

Do not use the elevator.

Go over evacuation route...see specific Building Emergency Plan.

If we are notified of a Shelter in Place requirement for a tornado warning we will shelter in the lowest level of this building away from windows and doors. Our preferred location is _____.

If we are notified of a Shelter in Place requirement for a hazardous materials release we will shelter in our classroom shutting any open doors and windows.

If we are notified of a Shelter in Place requirement for a civil disturbance such as a shooting we will shelter in a room that is securable preferably without windows. Our preferred location is _____.

(NOTE: Each building will have different evacuation & shelter locations. The specific Building Emergency Plan will provide specific locations and procedures)

Attached to the syllabus is an “Emergency Preparedness for Classrooms” sheet that provides additional preparedness information. Please review the sheet and the Emergency Preparedness website for additional emergency preparedness information.

EMERGENCY NOTIFICATION PROCEDURES are based on a simple concept – if you hear a fire alarm inside, proceed outside. If you hear a siren outside, proceed inside.

Indoor Fire Alarms mean to stop class or research and immediately evacuate the building.

o Proceed to your Emergency Assembly Area away from building doors. Remain outside until police, fire, or other emergency response personnel provide additional guidance or tell you it is

safe to leave.

All Hazards Outdoor Emergency Warning Sirens mean to immediately seek shelter (Shelter in Place) in a safe location within the closest building.

“Shelter in place” means seeking immediate shelter inside a building or University residence. This course of action may need to be taken during a tornado, a civil disturbance including a shooting or release of hazardous materials in the outside air. Once safely inside, find out more details about the emergency*. Remain in place until police, fire, or other emergency response personnel provide additional guidance or tell you it is safe to leave.

*In both cases, you should seek additional clarifying information by all means possible...Purdue Emergency Status page, text message, Twitter, Desktop Alert, Albertus Beacon, digital signs, email alert, TV, radio, etc....review the Purdue Emergency Warning Notification System multi-communication layers at

http://www.purdue.edu/ehps/emergency_preparedness/warning-system.html

EMERGENCY RESPONSE PROCEDURES:

Review the Emergency Procedures Guidelines

https://www.purdue.edu/emergency_preparedness/flipchart/index.html

Review the Building Emergency Plan (available on the Emergency Preparedness website or from the building deputy) for:

evacuation routes, exit points, and emergency assembly area

when and how to evacuate the building.

shelter in place procedures and locations

o additional building specific procedures and requirements.

EMERGENCY PREPAREDNESS AWARENESS VIDEOS

"The Coming Storm" The Coming Storm is a movie that dramatizes the aftermath of a campus shooting, weaving within the story the best practices and lessons learned from active shooter incidents that have occurred throughout the United States. View FBI Short Movie [here].

"Run. Hide. Fight.®" YouTube Video Produced by the City of Houston Mayor's Office of Public Safety and Homeland Security through a grant provided by a Department of Homeland Security Grant Funded Project of the Regional Catastrophic Planning Initiative, provides critical options for consideration to survive an active shooter event.

"Run. Hide. Fight.®" Text Version.

Department of Homeland Security Active Shooter web site...resources and tips on how to prepare for this type of horrific incident...learn more

Ready: Whenever, Wherever—A public service campaign, from the Indiana Department of Homeland Security, which encourages Hoosiers to practice reasonable awareness and develop a plan for action in the event of an emergency

Reference the Emergency Preparedness web site for additional information:

https://www.purdue.edu/ehps/emergency_preparedness/