CLIM 751: PREDICTABILITY AND PREDICTION OF WEATHER AND CLIMATE – CONCEPTS AND PHENOMENOLOGY

Fall 2024 - Syllabus

Instructors: J. Shukla (office: 105 Research Hall, email: jshukla@gmu.edu)
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Class Schedule: Monday 10:30 am – 1:10 pm (face-to-face: 121 Research Hall)

Course Homepage:

http://cola.gmu.edu/kinter/CLIM751/
http://mymasonportal.gmu.edu (Blackboard)
All reading materials will be posted on Blackboard.

Textbooks, Recommended and Supplementary Reading Materials:

Required Reading: See list.

Course Description:

This course covers predictability and seamless prediction of weather and climate for timescales ranging from days to decades. Studies limitations to predictability due to chaos, and possible sources of predictability due to slowly varying surface boundary conditions produced by interactions among atmospheres, ocean and land system. Discusses predictability of droughts and floods, monsoons, ENSO, decadal variations and climate change. Classes will be held online using Blackboard and sessions will be recorded for future reference.

Course Requirements:

1. *Presentation of Selected Papers from the Literature*: 70%
2. *Data analysis project:* 30%

Each week, selected students will be assigned to present papers from the scholarly literature. All students are expected to read all the required papers each week. One student will be asked to present the paper, and one student may be asked to summarize the impact of the paper, e.g., with a summary of the papers that have cited it since publication. All students are expected to conduct a data analysis exercise, using data sets provided for the course including long time series of re-forecasts and verifying observations. A separate assignment sheet describes the data analysis project.

Detailed Course Schedule (subject to minor adjustment)

Date	Week	Lecturer	Topic
26 Aug	1	Kinter/Shukla	Logistics; Introduction; Prediction of Weather & Climate
2 Sep	NA	NA	HOLIDAY
9 Sep	2	Shukla	Weather Predictability
16 Sep	3	Shukla	Dynamical Seasonal Prediction
23 Sep	4	Kinter	Data Analysis Project
30 Sep	5	DelSole	Predictability of Decadal Var. & Climate Change
7 Oct	6	Kinter	Ensembles and Predictability
14 Oct	NA	NA	HOLIDAY
21 Oct	7	Dirmeyer	Land Surface Predictability
28 Oct	8	Krishnamurthy	Predictability of the South Asian Monsoon
4 Nov	9	Straus	Intraseasonal Predictability
11 Nov	10	Huang	Seasonal Prediction: ENSO
18 Nov	11	Buckley	Predictability of North Atlantic SST
25 Nov	12	Burls	The Ocean’s Role in Tropical Climate Prediction
2 Dec	13	Kinter	Predictability of Extreme Events
9 Dec	14	Students	Data Project Presentations

PAPERS The papers listed below (subject to revision) are readings for each week of the course. The references below are either *REQUIRED* (should be read by all students), *RECOMMENDED* (optional reading), or *PRESENTED* (to be presented by students; highlighted in yellow). In some weeks, there will be two papers presented by students. In other weeks, there will only be a single paper presented, whose impact will be assessed by a different student. A separate schedule of student presentations will be provided.

1 – INTRODUCTION (no student presentations this week)

- *REQUIRED*: Shukla, J., 1985: Predictability. Issues in atmospheric and oceanic modeling, Part II. Weather Dynamics. *Advances in Geophysics*, Vol. 28B. Ed: S. Manabe, Academic Press, 87-122.
- *REQUIRED*: Huang, B., C.-S. Shin, J. Shukla, L. Marx, M. A. Balmaseda, S. Halder, P. A. Dirmeyer, and J. L. Kinter III, 2017: Reforecasting the ENSO Events in the Past Fifty-Seven Years (1958-2014). *J. Climate*, doi: 10.1175/JCLI-D-16-0642.1
- *REQUIRED*: Shukla, J. and J. L. Kinter III, 2006: Predictability of seasonal climate variations: A pedagogical review. In *Predictability of Weather and Climate*, T. Palmer and R. Hagedorn, eds. (Cambridge University Press, Cambridge, UK, 702 pp.), 306-341.

2 – WEATHER

- *TO BE PRESENTED*: Lorenz, E. N. (1982) Atmospheric predictability experiments with a large numerical model, Tellus, 34:6, 505-513, DOI: 10.3402/tellusa.v34i6.10836
- *TO BE PRESENTED*: Lorenz 1969: Three approaches to atmospheric predictability. *Bull. Amer. Meteor. Soc.,* 50**,** 345-351.
- *REQUIRED*: Lorenz, E. N. 1963: Deterministic Nonperiodic Flow. *J. Atmos. Sci*., 20, 130-141.

3 – DYNAMICAL SEASONAL PREDICTION

- *TO BE PRESENTED (#1)*: Lorenz, E. N., 1975: Climate predictability: The physical basis of climate modeling. *GARP Publication Series*, 16, WMO, 132–136.
- *TO BE PRESENTED (#1)*: Hoskins, B., 2012: Predictability Beyond the Deterministic Limit. *WMO Newsletter*, 61, World. Meteor. Org. (https://public.wmo.int/en/bulletin/predictability-beyond-deterministic-limit)**.**
- *TO BE PRESENTED (#2)*: Hoskins, B., 2013: The potential for skill across the range of the seamless weather-climate prediction problem: a stimulus for our science. *Quart. J. Roy. Meteor. Soc*., 139: 573–584.
- Shukla, J., 2009: Seamless Prediction of Weather and Climate: A New Paradigm for Modeling and Prediction Research. US National Oceanic and Atmospheric Administration Climate Test Bed Joint Seminar Series. NCEP, Camp Spring, MD.
- *REQUIRED*: Shukla, J., 1981: Dynamical predictability of monthly means. *J. Atmos. Sci.*, 38, 2547-2572.
- *REQUIRED*: Shukla, J., 1998: Predictability in the Midst of Chaos: A Scientific Basis for Climate Forecasting. *Science*, 282, 728-731.
- *REQUIRED*: Miyakoda, K. and J. Sirutis, 1985: Extended range forecasting**.** *Adv. Geophys.*, 28B**,** 55-85.

4 – DATA ANALYSIS PROJECT

- *REQUIRED*: Huang, B., C.-S. Shin, J. Shukla, L. Marx, M. A. Balmaseda, S. Halder, P. A. Dirmeyer, and J. L. Kinter III, 2017: Reforecasting the ENSO Events in the Past Fifty-Seven Years (1958-2014). *J. Climate*, doi: 10.1175/JCLI-D-16-0642.1

5 – DECADAL & CLIMATE CHANGE

- *TO BE PRESENTED*: IPCC AR6: chapter 4: Future Global Climate: Scenario-based Projections and Near-term Information (up to and including sec. 4.4).https://www.ipcc.ch/report/ar6/wg1/
- *TO BE PRESENTED*: Scaife and Smith, 2018: A signal-to-noise paradox in climate science. npj https://www.nature.com/articles/s41612-018-0038-4
- *REQUIRED*: DelSole, T., 2017: Decadal Prediction of Temperature: Achievements and Future Prospects. *Curr. Climate Change Rep.*, doi: 10.1007/s40641-017-0066-x.
- *REQUIRED*: Smith, D.M., R. Eade, A. A.Scaife, L.-P. Caron, G. Danabasoglu, T. M. DelSole, T. Delworth, F. J. Doblas-Reyes, N. J. Dunstone, L. Hermanson, V. Kharin, M. Kimoto, W. J. Merryfield, T. Mochizuki, W. A. Müller, H. Pohlmann, S. Yeager, Yang, X., 2019: Robust Skill of Decadal Predictions. *njp Nature Climate and Atmospheric Science*, 2, https://www.nature.com/articles/s41612-019-0071-y.
- *RECOMMENDED*: Latif, M., and N. S. Keenlyside, 2011: A perspective on decadal climate variability and predictability, *Deep Sea Res., Part II*, *58*(17–18), 1880–1894, doi:10.1016/j.dsr2.2010.10.066.

6 – ENSEMBLES

- *TO BE PRESENTED*: Becker, E. F., H. van den Dool, and Q. Zhang, 2014: Predictability and Forecast Skill in NMME. *J. Climate*, 27, 5891-5906.
- *TO BE PRESENTED:* Slingo, J. and T. N. Palmer, 2016: Uncertainty in weather and climate prediction. *Phil. Trans. R. Soc. A* (2011) 369, 4751–4767.
- *REQUIRED:* Leutbecher, M. 2019: Ensemble size: How suboptimal is less than infinity? *Quart. J. Roy. Meteor. Soc*., 145, 107– 128. https://doi.org/10.1002/qj.3387
- *REQUIRED:* Pegion, K., and Coauthors, 2019: The Subseasonal Experiment (SubX): A Multimodel Subseasonal Prediction Experiment. *Bull. Amer. Meteor. Soc.*, **100**, 2043–2060.
- *REQUIRED*: Hagedorn, R., F. J. Doblas-Reyes and T. N. Palmer, 2005: The rationale behind the success of multi-model ensembles in seasonal forecasting – I. Basic concept. *Tellus*, 57A*, 219–233.*
- *RECOMMENDED*: Kirtman, B. P., D. Min, J. M. Infanti, J. L. Kinter III, D. A. Paolino, Q. Zhang, H. van den Dool, S. Saha, M. Pena Mendez, E. Becker, P. Peng, P. Tripp, J. Huang, D. G. DeWitt, M. Tippett, A. G. Barnston, S. Li, A. Rosati, S. D. Schubert, M. Rienecker, M. Suarez, Z. E. Li, L. Marshak, Y.-K. Lim, J. Tribbia, K. Pegion, W. J. Merryfield, B. Denis, E. F. Wood, 2014: The North American Multimodel Ensemble: Phase-1 Seasonal-to-Interannual Prediction; Phase-2 toward Developing Intraseasonal Prediction. *Bull. Amer. Meteor. Soc*., 95, 585-601.

7 – LAND SURFACE

- *TO BE PRESENTED*: Dirmeyer, P. A., and S. Halder, and R. Bombardi, 2018: On the harvest of predictability from land states in a global forecast model. *J. Geophys. Res.: Atmos*., **123**, 13,111-13,127, https://doi.org/10.1029/2018JD029103.
- *TO BE PRESENTED*: Koster, R. D., and Coauthors, 2011: The second phase of the Global Land-Atmosphere Coupling Experiment: Soil moisture contributions to subseasonal forecast skill. *J. Hydrometeor.*, 12, 805-822, https://doi.org/10.1175/2011JHM1365.1.

- *REQUIRED*: Koster, R. D., and Coauthors, 2004: Regions of strong coupling between soil moisture and precipitation. *Science*, 305, 1138-1140, https://doi.org/10.1126/science.1100217.
- *REQUIRED*: Santanello, J. A., and Coauthors, 2018: Land-atmosphere interactions: The LoCo perspective. *Bull. Amer. Meteor. Soc.*, 99, 1253-1272, https://doi.org/10.1175/BAMS-D-17-0001.1.
- *REQUIRED*: Shukla, J. and Y. Mintz, 1982: Influence of Land-Surface Evapotranspiration on the Earth's Climate. *Science,* 215, 1498-1501, DOI:10.1126/science.215.4539.1498
- *REQUIRED*: Rahmati, M., and Coauthors, 2024: Soil Moisture Memory: State-Of-The-Art and the Way Forward. *Reviews of Geophysics*, **62**, e2023RG000828, https://doi.org/10.1029/2023RG000828

8 – SOUTH ASIAN MONSOON

- *TO BE PRESENTED*: Charney, J. G., and J. Shukla, 1981: Predictability of monsoons. *Monsoon Dynamics*, J. Lighthill, and R. P. Pearce, Eds., Cambridge University Press, 99-109.
- *TO BE PRESENTED*: Krishnamurthy, V., 2017: Seasonal prediction of South Asian monsoon in CFSv2, *Climate Dyn*. doi:10.1007/s00382-017-3963-8
- *REQUIRED*: Krishnamurthy, V., 2017: Predictability of CFSv2 in the tropical Indo-Pacific region at daily and subseasonal time scales. *Clim. Dyn*., doi:10.1007/s00382-017-3855-y

9 – INTRASEASONAL

- *TO BE PRESENTED*: Kim, H. et al., 2018: Prediction of the Madden-Julian Oscillation: A Review. *J. Climate,* 31, 9425-9443.
- *TO BE PRESENTED:* Ferranti, L., L. Magnusson, F. Vitart and D. S. Richardson, 2018: How far in advance can we predict changers in large-scale flow leading to severe cold conditions over Europe? *Quart. J. Roy. Meteor. Soc*., 144, 1788-1802. DOI:10.1002/qj.3341.
- *REQUIRED*: Simmons, A. J., J. M. Wallace, and G. W. Branstator, 1983: Barotropic Wave Propagation and Instability, and Atmospheric Teleconnection Patterns. *J. Atmos. Sci.,* **40**, 1363-1392.
- REQUIRED: Vitart, F., 2017: Madden-Julian Oscillation prediction and teleconnections in the S2S database. *Quart. J. Roy. Meteor. Soc*., 143, 2210-2220. July 2017 A DOI:10.1002/qj.3079.
- *RECOMMENDED:* Straus et al, 2023: Intrinsic predictability limits arising from Indian Ocean Madden–Julian oscillation (MJO) heating: effects on tropical and extratropical teleconnections. *Wea. Clim. Dyn*., 4, 1001–1018. https://doi.org/10.5194/wcd-4-1001-2023
- *RECOMMENDED*: Sardeshmukh, P. D., and B. J. Hoskins, 1988: The Generation of Global Rotational Flow by Steady Idealized Tropical Divergence. *J. Atmos. Sci.,* **45**, 1228-1251.
- *RECOMMENDED:* Judt, F., 2020: Atmospheric Predictability of the Tropics, Middle Latitudes, and Polar Regions Explored through Global Storm-Resolving Simulations. *J. Atmos. Sci*., 77, 257-276.
- *RECOMMENDED:* Vitart, F., and F. Molteni, 2010: Simulation of the Madden-Julian Oscillation and its teleconnections in the ECMWF forecast system. *Quart. J. Roy. Meteor. Soc.,* 649B, 842–855.
- *RECOMMENDED:* Ferranti, L., S. Corti and M. Janousek, 2014: Flow-dependent verification of the ECMWF ensemble over the Euro-Atlantic sector. *Quart. J. Roy. Meteor. Soc*., 688A, 916–924.

10 – SEASONAL PREDICTION: ENSO

- *TO BE PRESENTED*: Timmermann, A., An, S., Kug, J. et al. 2018: El Niño–Southern Oscillation complexity. *Nature* 559, 535–545. https://doi.org/10.1038/s41586-018-0252-6

- *TO BE PRESENTED*: L'Heureux, M.L, A.F.Z. Levine, M. Newman, C. Ganter, J.-J. Luo, M. K. Tippett, and T. N. Stockdale, 2020: ENSO Prediction. In El Niño Southern Oscillation in a Changing Climate (an AGU book to be published in August). (only a manuscript is available now)
- *REQUIRED:* Zhu, J., B. Huang, L. Marx, J. L. Kinter III, M. A. Balmaseda, R.-H. Zhang, and Z.-Z. Hu, 2012: Ensemble ENSO hindcasts initialized from multiple ocean analyses. *Geophy. Res. Lett.,* 39, L09602, DOI:10.1029/2012GL051503.
- *REQUIRED:* McPhaden, M. J., A. Timmermann, M. J. Widlansky, M. A. Balmaseda, and T. N. Stockdale, 2015: The curious case of the El Niño that never happened. *Bull. Amer. Meteor. Soc*., 96, 1647-1665.

11 – OCEAN DYNAMICS AND NORTH ATLANTIC SST

- *TO BE PRESENTED*: Smith et al (2020). North Atlantic climate far more predictable than models imply, *Nature*, doi: *https://doi.org/10.1038/s41586-020-2525-0*.
- *TO BE PRESENTED)*: Yeager et al (2018). Predicting near term changes in the earth system, BAMS, doi: 10.1175/BAMS-D-17-0098.1
- *REQUIRED*: Buckley, M.W. and J. Marshall (2016). Observations, inferences and mechanisms of the Atlantic Meridional Overturning Circulation: a review. *Reviews of Geophysics*, 54, 5—63. doi: 10.1002/2015RG000493. ONLY required to read sections 2.4 and 6. The rest of the paper, particularly the introduction and section 2 may be useful background for students, particularly those not familiar with the oceanography of the Atlantic Ocean.
- *RECOMMENDED:* Buckley, M. W., T. DelSole, M. S. Lozier, and L. Li (2019), Predictability of North Atlantic Sea Surface Temperature and Upper Ocean Heat Content, *J. Climate*, 32, 3005-3023, doi: 10.1175/JCLI-D-18-0509.1.

12 – OCEAN'S ROLE

- *TO BE PRESENTED*: Chang, P., T. Yamagata, P. Schopf, S. K. Behera, J. Carton, W. S. Kessler, G. Meyers, T. Qu, F. Schott, S. Sheyte, and S.-P. Xie, 2006: Climate Fluctuations of Tropical Coupled Systems – The Role of Ocean Dynamics. *J. Climate*, 19, 5122-5174.

13 – EXTREME EVENTS

- *TO BE PRESENTED*: Gershunov, A., 1998: ENSO influence on intraseasonal extreme rainfall and temperature frequencies in the contiguous United States: Implications for long-range predictability. *J. Climate*, 11, 3192–3203.
- *TO BE PRESENTED*: Weisheimer, A., F. J. Doblas-Reyes, T. Jung, *and* T. N. Palmer, 2011: On the predictability of the extreme summer 2003 over Europe, *Geophys. Res. Lett.,* 38, L05704, *doi:*10.1029/2010GL046455.
- *REQUIRED:* Feudale, L. and J. Shukla, 2011a: Influence of sea surface temperature on the European heat wave of 2003 summer. Part I: an observational study. *Climate Dyn*., 36:1691–1703, DOI 10.1007/s00382-010-0788-0
- *REQUIRED:* Feudale, L. and J. Shukla, 2011b: Influence of sea surface temperature on the European heat wave of 2003 summer. Part II: a modeling study. *Climate Dyn*., 36:1705-1715, DOI 10.1007/s00382-010-0789-z
- *REQUIRED:* Craig, G. C., Fink, A. H., Hoose, C., Janjić, T., Knippertz, P., Laurian, A., Lerch, S., Mayer, B., Miltenberger, A., Redl, R., Riemer, M., Tempest, K. I., & Wirth, V. (2021). Waves to Weather: Exploring the Limits of Predictability of Weather, *Bulletin of the American Meteorological Society*, *102*(11), E2151-E2164. https://journals.ametsoc.org/view/journals/bams/102/11/BAMS-D-20-0035.1.xml

- *REQUIRED*: Sillmann, J., Thorarinsdottir, T., Keenlyside, N., Schaller, N., Alexander, L.V., Hegerl, G., Seneviratne, S.I., Vautard, R., Zhang, X., Zwiers, F.W., 2017: Understanding, modeling and predicting weather and climate extremes: challenges and opportunities. *Weather Clim. Extremes,* 18, 65–74.
- *REQUIRED*: Vitart, F., Robertson, A.W., 2018: The sub-seasonal to seasonal prediction project and the prediction of extreme events. *npj Clim Atmos Sci* **1,** 3. https://doi.org/10.1038/s41612-018-0013-0
- *REQUIRED*: Pepler, A. S., L. B. Diaz, C. Prodhomme, F. J. Doblas-Reyes, A. Kumar, 2015: The ability of a multi-model seasonal forecasting ensemble to forecast the frequency of warm, cold and wet extremes. *Wea. Climate Extremes*, 9, 68-77.
- *REQUIRED*: Namias, J., 1978: Multiple causes of the North American abnormal winter of 1976-77. *Mon. Wea. Rev*., 106 (1978), pp. 279–295.
- *RECOMMENDED*: Della-Marta, P. M., J. Luterbacher, H. von Weissehfluh, E. Xoplaki, M. Brunet, H. Wanner, 2007: Summer heat waves over western Europe 1880-2003, their relationship to large-scale forcings and predictability. *Climate Dyn*., 29, 251-275.
- *RECOMMENDED*: Miyakoda, K., T. Gordon, R. Caverly, W. Stern, and J. Sirutis, 1983: Simulation of a blocking event in January 1977. *Mon. Wea. Rev*., 111, 846-869.

Goals and Learning Outcomes:

The course will:

1. *Provide a background in the scientific problem of weather and climate predictability*. Students will gain an in-depth understanding of how and why weather and climate may be predictable. Students will have the opportunity to critically review the scholarly literature on the predictability of variations of the Earth system at time scales of days to decades. The emphasis on both the nature of scientific findings and the impact that individual papers have had on subsequent scholarship ensure that students will gain an appreciation for the practice of professional scientific inquiry.

2. *Provide knowledge and skills necessary to conduct original quantitative research in predictability*. By have access to a current research-quality data set for analysis and manipulation, the students will develop the ability to work with high-volume geophysical data from a variety of sources.

3. *Reinforce oral and written communication skills*. Students will present papers from the literature, evaluate the impact these papers have had on the scientific body of knowledge, and critically examine the results reported in the literature. Students will write reports on the findings of their calculations with research-quality data sets, with the potential to submit truly new findings for peer-reviewed publication.

FERPA and Use of GMU Email Addresses for Course Communication:

The Family Educational Rights and Privacy Act (FERPA) governs the disclosure of education records for eligible students and is an essential aspect of any course. **Students must use their GMU email account** to receive important University information, including communications related to this class. Instructors will not respond to messages sent from or send messages regarding course content to a non-GMU email address.

Student responsibility: Students are responsible for checking their GMU email regularly for course-related information, and/or ensuring that GMU email messages are forwarded to an account they do check.

Online Tools:

Any student use of Generative Artificial Intelligence (AI) tools should follow the fundamental principles of Mason's Academic Standards policies (see below). Some kinds of participation in online study sites violate the Academic Standards: these include accessing exam or quiz questions for this class; accessing exam, quiz, or assignment answers for this class; uploading of any of the instructor's materials or exams; and uploading any of your own answers or finished work.

Academic Standards:

Academic Standards exist to promote authentic scholarship, support the institution's goal of maintaining high standards of academic excellence, and encourage continued ethical behavior of faculty and students to cultivate an educational community which values integrity and produces graduates who carry this commitment forward into professional practice.

As members of the George Mason University community, we are committed to fostering an environment of trust, respect, and scholarly excellence. Our academic standards are the foundation of this commitment, guiding our behavior and interactions within this academic community. The practices for implementing these standards adapt to modern practices, disciplinary contexts, and technological advancements. Our standards are embodied in our courses, policies, and scholarship, and are upheld in the following principles:

- **Honesty:** Providing accurate information in all academic endeavors, including communications, assignments, and examinations.
- **Acknowledgement:** Giving proper credit for all contributions to one's work. This involves the use of accurate citations and references for any ideas, words, or materials created by others in the style appropriate to the discipline. It also includes acknowledging shared authorship in group projects, co-authored pieces, and project reports.
- **Uniqueness of Work:** Ensuring that all submitted work is the result of one's own effort and is original, including free from self-plagiarism. This principle extends to written assignments, code, presentations, exams, and all other forms of academic work.

Violations of these standards—including but not limited to plagiarism, fabrication, and cheating—are taken seriously and will be addressed in accordance with university policies. The process for reporting, investigating, and adjudicating violations is outlined in the university's procedures. Consequences of violations may include academic sanctions, disciplinary actions, and other measures necessary to uphold the integrity of our academic community.

The principles outlined in these academic standards reflect our collective commitment to upholding the highest standards of honesty, acknowledgement, and uniqueness of work. By adhering to these principles, we ensure the continued excellence and integrity of George Mason University's academic community.

Student responsibility: Students are responsible for understanding how these general expectations regarding academic standards apply to each course, assignment, or exam they participate in; students should ask their instructor for clarification on any aspect that is not clear to them.

Please note: The homework for this course must be **your own work**, not done in collaboration with other students. If you have questions about the homework, please ask the instructor (ikinter@gmu.edu).

Title IX Resources and Required Reporting:

As a part of George Mason University's commitment to providing a safe and non-discriminatory learning, living, and working environment for all members of the University community, the University does not discriminate on the basis of sex or gender in any of its education or employment programs and activities. Accordingly, **all non-confidential employees, including your faculty member, have a legal requirement to report to the Title IX Coordinator, all relevant details obtained directly or indirectly about any incident of Prohibited Conduct** (such as sexual harassment, sexual assault, gender-based stalking, dating/domestic violence). Upon notifying the Title IX Coordinator of possible Prohibited Conduct, the Title IX Coordinator will assess the report and determine if outreach is required. If outreach is required, the individual the report is about (the "Complainant") will receive a communication, likely in the form of an email, offering that person the option to meet with a representative of the Title IX office.

For more information about non-confidential employees, resources, and Prohibited Conduct, please see University Policy 1202: Sexual and Gender-Based Misconduct and Other Forms of Interpersonal Violence. Questions regarding Title IX can be directed to the Title IX Coordinator via email to TitleIX@gmu.edu, by phone at 703-993-8730, or in person on the Fairfax campus in Aquia 373.

Student opportunity: If you prefer to speak to someone ***confidentially***, please contact one of Mason's confidential employees in Student Support and Advocacy (SSAC), Counseling and Psychological Services (CAPS), Student Health Services (SHS), and/or the Office of the University Ombudsperson.

This course will be conducted in a manner that is consistent with the George Mason University policies on non-discrimination (https://universitypolicy.gmu.edu/policies/non-discrimination-policy/), and diversity (https://stearnscenter.gmu.edu/knowledge-center/general-teaching-resources/mason-diversity-statement/) and the policy prohibiting sexual and gender-based harassment and inter-personal violence (https://universitypolicy.gmu.edu/policies/sexual-harassment-policy/). The instructors in this course are committed to recognizing and celebrating diversity, one of Mason's core values. The University promotes a living and learning environment for outstanding growth and productivity among its students, faculty and staff. Through its curriculum, programs, policies, procedures, services and resources, Mason strives to maintain a quality environment for work, study and personal growth.

Gender identity and pronoun use: If you wish, please share your name and gender pronouns with me (ikinter@gmu.edu) and indicate how best to address you in class and via email. I use he/him/his for myself, and you may address me as Dr. Kinter or Prof. Kinter in email and verbally.

Accommodations for Students with Disabilities

Disability Services at George Mason University is committed to upholding the letter and spirit of the laws that ensure equal treatment of people with disabilities. Under the administration of University Life, Disability Services implements and coordinates reasonable accommodations and disability-related services that afford equal access to university programs and activities. Students can begin the registration process with Disability Services at any time during their enrollment at George Mason University. If you are seeking accommodations, please visit https://ds.gmu.edu/ for detailed information about the Disability Services registration process. Disability Services is located in Student Union Building I (SUB I), Suite 2500. Email: ods@gmu.edu. Phone: (703) 993-2474.

Student responsibility: Students are responsible for registering with Disability Services and communicating about their approved accommodations with their instructor *in advance* of any relevant class meeting, assignment, or exam.

Other Useful Campus Resources:

Mason has several support services for students. Please go to
https://stearnscenter.gmu.edu/knowledge-center/knowing-mason-students/student-support-resources-on-campus/
for a directory of services.

Other University Policies:

The University Catalog, http://catalog.gmu.edu, is the central resource for university policies affecting student, faculty, and staff conduct in university academic affairs. Other policies are available at http://universitypolicy.gmu.edu/. All members of the university community are responsible for knowing and following established policies.