Course Syllabus

Zoo Management & Conservation

WIS 4934 – Fall 2025

Class Times:

Tuesday: Period 7	1:55 pm – 2:45 pm	Rinker 215
Thursday: Period 6-7	12:50 pm – 2:45 pm	Newins-Ziegler 219

Instructor:

Dr. Matt Hallett
Assistant Research Professor, Department of Wildlife Ecology & Conservation

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Office Hours: Tuesday 10am – 12pm (via Zoom), Thursday 10am – 12 pm (via Zoom), or in person / via Zoom by appointment

Course Description:

In an era marked by biophilia and nature deficit disorder, zoos and aquariums harness a massive potential to connect people and wildlife in a way that benefits wild populations and wild places. In the modern zoo, animals in a collection are considered ambassadors who receive extraordinary care while building a bridge to the issues faced by their wild counterparts. An ever-evolving cultural awareness of the rights of animals and a historical consciousness that includes cases of outdated practices and facilities serve as motivation for modern zoos and aquariums to separate themselves from mere attractions by dramatically improving animal welfare, emphasizing education, and actively engaging in, or supporting, field conservation. The mission of the Association of Zoos & Aquariums dictates that their members 'advance animal welfare, public engagement, and conservation of wildlife.' Throughout this course, you will learn how zoos and aquariums are working to balance these three ambitious goals and meet some of the people that are working behind and in front of the scenes to make it all happen, before gaining the opportunity to try your own hand at building a zoo that meets the high standards of modern science and society.

Course Pre-requisites:

1. Must have taken BSC 2010 (Integrated Principles of Biology 1) or BSC 2011 (Integrated Principles of Biology 2) prior to taking this course.

Course Objectives:

By the end of this course, students will be able to:

- Identify zoo careers that are pertinent to their interests and understand how they are attained;
- Understand the history of zoos and aquariums and differentiate modern accomplishments from historical shortcomings;
- Form and defend a position on the benefits of modern zoo and aquariums;
- Evaluate mission-based programs, initiatives, and offerings of a zoo from the perspective of a business with basic needs to provide life support for animals and compensation for staff;
- Design facilities, exhibits, and infrastructure that promotes the health and safety of animals, staff, and visitors, generate revenue, and meet high standards for sustainability;
- Formulate plans for increasing animal welfare through wellness-inspired design, nutrition, enrichment, and training;
- Develop zoo programming that benefits science and conservation education;
- Explain how zoos and aquariums support, facilitate, or directly engage in conservation;
- Demonstrate ability to balance the needs of business, welfare, education, and conservation by building a successful zoo using simulation software.

Required Text

None. Readings are to be completed prior to class on the day listed in the course schedule. Readings will come from recommended texts, peer-reviewed journals, popular media, web resources, or videos, and will be posted on the course page in canvas. You are expected to read each of the assigned readings and review one highlighted supplementary material prior to class. The remaining supplementary materials are there for your learning and/or for the optional 'deep dive' extra credit assignment outlined below. You are **NOT** required to purchase any of the recommended texts. All readings will be made available via the course page on canvas.

Materials & Supplies

Each student is required to purchase access to Planet Zoo, a zoo simulation software.

Required software:
Planet Zoo©. (2020) Frontier Developments plc. All rights reserved.

Recommended Texts

Grazian, D. (2015). American Zoo: A Sociological Safari. Princeton University Press, New Jersey, USA.

Kaufman, A.B., Bashwa, M.J., & Maple, T.L. (eds.). (2019). Scientific foundations of zoos and aquariums. Cambridge University Press, UK.

Kleiman, D.G., Thompson, K.V., & Baer, C.K. (2010). Wild Mammals in Captivity: Principles & Techniques for Zoo Management. The University of Chicago Press, IL, USA.

Maple, T.L. (2016). Professor in the Zoo: Designing the Future of Wildlife in Human Care. Red Leaf Press, Fernandina Beach, FL, USA.

Minteer, B.A., Maienschein, J., & Collins, J.P. (2018). The Ark and Beyond: The Evolution of Zoos and Aquarium Conservation. The University of Chicago Press, Illinois, USA.

Rees, P.A. (2011). An Introduction to Zoo Biology & Management. John Wiley & Sons, Ltd, West Sussex, U.K.

Zimmermann, A., Hatchwell, M., Dickie, L, & West, C. (eds.). (2007). Zoos in the 21st Centruy: Catalysts for Conservation? Cambridge University Press, UK.

General Course Structure:

Prior to class meetings:

- Complete assigned readings;
- Review one supplementary item (video or popular article);
- Watch video of virtual guest speaker.

During class meetings:

- Attend live in-person sessions during assigned class times;
- Participate in online discussions and activities.

Weekly:

- Complete and submit participation assignment related to guest speaker.

In between class meetings:

- Construct, improve, expand, and grow your zoo using PlanetZoo© simulation software.

Over the course of the semester:

- Attend at least one zoo/aquarium field trip.

Course Schedule:

Theme I: Purpose, history, legislation & organizational structure of zoos

August 21: Course introduction, syllabus, assignments, expectations, pre-survey

August 26: Intro to zoo management, zoo conservation, and the history of zoos
Course introduction, review syllabus, and discuss the purpose and history of zoos from prehistoric to menageries to colonial/industrial to modern

Assigned readings:

1. Barrow, M.V. (2018). Teetering on the Brink of Extinction: The Passenger pigeon, the Bison, and American Zoo Culture in the Late Nineteenth and Early Twentieth Centuries. In: The Ark and Beyond: The Evolution of Zoos and Aquarium Conservation.
2. Rees, P.A. (2011). Chapter 3: A short history of zoos. An introduction to zoo biology & management.

Supplemental readings:

1. Rees, P.A. (2011). Chapter 1: The purpose and popularity of zoos. An Introduction to Zoo Biology & Management.
2. Guerrini, A. & Osborne, M.A. (2018). Animals in Circulation: The "Prehistory" of Modern Zoos. In: The Ark and Beyond: The Evolution of Zoos and Aquarium Conservation.
3. Ritvo, H. (2018). The World as Zoo: Acclimatization in the Nineteenth Century. In: The Ark and Beyond: The Evolution of Zoos and Aquarium Conservation.

Supplemental web resources:

1. National Geographic. (2020). Zoo.
2. Rothfels, N.T. (2019). Prison, spectacle, refuge: Modern zoos are proud of their contribution to animal conservation but will always be haunted by their histories. Aeon.
3. European Professional Zookeeper Qualification Framework. (2017). Evolution of Zoos.
4. Association of Zoos & Aquariums. (2020).
5. American Association of Zoo Keepers. (2020).
6. World Association of Zoos & Aquariums. (2020).
7. The Species Survival Commission. (2020).

Supplemental videos:

1. UC Davis. (2011). Jane Goodall on Role Zoos Play in Saving Wild Animals.
2. Origins OSU. (2017). Caged: Humans and Animals at the Zoo (a History Talk podcast).
3. Discovery Science. (2019). Human Zoos: America's Forgotten History of Scientific Racism.
4. Association of Zoos & Aquariums. (2018). We Are AZA.
5. WorldZooAqua. (2009). World Association of Zoos and Aquariums (WAZA) Trailer.
6. Species Survival Commission IUCN. (2020). About the Species Survival Commission.

August 28: Animal acquisition, zoo legislation, and zoo organizations & governing bodies

Hour 1: Acquiring animals for zoo collections (wild-caught vs. captive-bred), zoos vs. circus', zoos vs. wildlife tourism, AZA accredited zoos vs. private zoos, AZA vs. ZAA

Hour 2: Zoo legislation, governing bodies, and organizations

Assigned readings:

1. Powell, D.M., Dorsey, C.L., Faust, L.J. (2020). Advancing the science behind animal program sustainability: An overview of the special issue. Zoo Biology. 38:5-11.

2. Earnhardt, J. M., Thompson, S. D., & Schad, K. (2004). Strategic planning for captive populations: projecting changes in genetic diversity. Animal Conservation, 7(1), 9-16.

Supplemental readings:

1. Rees, P.A. (2011). Chapter 5: Zoo legislation. An introduction to zoo biology & management.
2. Tlusty, M. F., et al. (2013). Opportunities for public aquariums to increase the sustainability of the aquatic animal trade. Zoo biology, 32(1), 1-12.
3. Barringer, F. (2012). Opposition as Aquarium Seeks Import of Whales. New York Times.
4. Pepper, Elly. (2017). Zoos Take a Step Backward in Pangolin Conservation. Scientific American.
5. Morrell, V. (2008). Do Zoos Shorten Elephant Life Spans? Science.
6. Zoological Society of Milwaukee. n.d. How new animals come to the zoo.
7. Holst, B. & Dickie, L.A. (2007). How do national and international regulations and policies influence the role of zoos and aquariums in conservation? In: Zoos in the 21st Century: Catalysts for Conservation?

Supplemental web resources:

1. Association of Zoos & Aquariums. (2016). AZA Policy on Responsible Population Management.
2. Association of Zoos & Aquariums. (2017). Guidelines for the Humane and Ethical Acquisition and Management of Vertebrate Feeder Animals (excluding fish).
3. Association of Zoos & Aquariums. (2020). About AZA Accreditation.
4. Zoological Association of America. n.d. About ZAA.
5. Zoological Association of America. n.d. ZAA Accreditation.
6. Lincoln Park Zoo. (2020). Advising AZA Species Survival Plans.
7. Lincoln Park Zoo. (2020). Advising AZA Population Management Center.
8. Larsen, J.L. (2010). Current non-AZA accredited zoos, aquariums, nature-wildlife centers and refuges in the United States.
9. Animal Legal & Historical Center. (2004). Overview of the Laws Affecting Zoos.

Supplemental videos:

1. Calgary Zoo. (2018). The Association of Zoos and Aquariums.
2. Association of Zoos & Aquariums. (2019). Why AZA Matters.
3. LouisvilleZoo. (2019). Why Accredited Zoos Are Important.
4. WFMY News 2. (2019). AZA Accreditation: What Is It & How It Helps With Security Where Dangerous Animals Live.
5. Detroit Zoo. (2020). Detroit Zoo | Educational Lesson: What is the AZA?
6. Tennessee Aquarium. (2019). Celebrating 25 Years of Accreditation from the Association of Zoos and Aquariums!

Virtual guest speaker(s):

- Kristine Schad Eebes, AZA Population Management Center (PMC), Lincoln Park Zoo

September 2: Zoos as a business – organizational structure, staffing, and zoo economics

Organizational structure (departments, duties, & staffing) and economics (ticket sales, memberships, gift shop, food, fundraising, marketing, & PR)

Assigned readings:

1. Driml, S., Ballantyne, R., & Packer, J. (2017). How Long Does an Economic Impact Last? Tracking the Impact of a New Giant Panda Attraction at an Australian Zoo. Journal of Travel Research. 56(5): 613-624.
2. Grajal, A. (2013). Chapter 35: Zoos as ecotourism experiences. In: International Handbook on Ecotourism.

Supplemental readings:

1. Association of Zoos & Aquariums. (2019). AZA Zoos and Aquariums Contribute $24 Billion to U.S. Economy.
2. NPR Planet Money. (2014). Episode 566: The Zoo Economy.
3. San Antonio Business Journal. (2011). Study shows zoos have big economic impact.
4. Chicago Zoological Society. (2019). Economic Impact.
5. Cincinnati Zoo & Botanical Garden. (2013). Zoo Boosts Local Economy with BIG Regional Impact.
6. Fuller, S.S. (2012). Economic Impact of Zoo & Aquarium Operations and Construction Spending in 2012. George Mason University, Arlington, Virginia.
7. Rees, P.A. (2011). Chapter 4: Zoo organization and management. An Introduction to Zoo Biology & Management.
8. Grazian, D. (2015). Chapter 6: Simply Nature: Zoos and the Branding of Conservation. American Zoo: A Sociological Safari

Supplementary web materials:

1. Minnesota Zoological Gardens. (2019). Minnesota Zoo Organizational Chart.
2. Jacksonville Zoo & Gardens. (2019). Jacksonville Zoo Organizational Chart.
3. Zoo Miami. (2019). Zoo Miami Organizational Chart.
4. Woodland Park Zoo. (2019). Woodland Park Zoo Organizational Chart.
5. Smithsonian's National Zoo. (2019) National Zoo Organizational Chart.

Supplemental videos:

1. PBNUpload. (2019). Can a zoo boost the economy?
2. NBC News. (2020). While Zoos Are Closed To The Public, Keepers Care For Animals Big And Small | NBC Nightly News.
3. WNIT Public Television. (2011). Economic Outlook: Impact of Zoos & Aquariums.
4. TMJ4 News. (2016). Study reveals Milwaukee County Zoo is economic driver.
5. Vox. (2017). China's panda diplomacy, explained.

Virtual guest speaker(s):

- David Jenike, Chief Operating Officer, Cincinnati Zoo & Botanical Gardens

September 4: Intro to zoo design – naturalistic, multi-species exhibits, focus on wild habitats, cultural connections, attractions, and sustainability

1st 40 minutes: The modern zoo – naturalistic, multi-species exhibits with hidden barriers that provide an educational experience vs. concrete and bars, connections to wild habitats, cultural artifacts and connections to people

2nd 40 minutes: Gardens, art, dinosaurs, shopping, roller coasters, and other attractions

3rd 40 minutes: Sustainability – water, power, trash, food, waste, animal feed

Assigned readings:

1. Ross, S. R., et al. (2012). The impact of a modern, naturalistic exhibit design on visitor behavior: A cross-facility comparison. Visitor Studies, 15(1), 3-15.

2. Townsend, S. (2009). Incorporating sustainable practices for zoos and aquariums: a Triple Bottom Line approach. International Zoo Yearbook, 43(1), 53-63.

Supplemental readings:

1. Rees, P.A. (2011). Chapter 7: Zoo and exhibit design (7.1-7.2). An Introduction to Zoo Biology & Management.
2. Coe, J. C. (1985). Design and perception: Making the zoo experience real. Zoo Biology, 4(2), 197-208.
3. Davey, G. (2006). Relationships between exhibit naturalism, animal visibility and visitor interest in a Chinese Zoo. Applied Animal Behaviour Science, 96(1-2), 93-102.
4. Ward, P. I., et al. (1998). The relationship between popularity and body size in zoo animals. Conservation Biology, 12(6), 1408-1411.
5. Fàbregas, M. C., et al. (2012). Do naturalistic enclosures provide suitable environments for zoo animals? Zoo Biology, 31(3), 362-373.
6. Skibins, J. C., et al. (2013). Charisma and conservation: charismatic megafauna's influence on safari and zoo tourists' pro-conservation behaviors. Biodiversity and Conservation, 22(4), 959-982.
7. Koldewey, H. J., Atkinson, J., & Debney, A. (2009). Threatened species on the menu? Towards sustainable seafood use in zoos and aquariums. International Zoo Yearbook, 43(1), 71-81.

Supplemental web resources:

1. Brown, S. (2019). Jacksonville's Zoo's ten-year overhaul poised to begin. WOKV.
2. MIG Portico. n.d. Miami Zoo Master Plan.
3. Denver Zoo. (2016). Facility Master Plan. https://denverzoo.org/wp-
4. Oregon Zoo. (2011). Comprehensive Capital Master Plan.
5. Omaha Zoo. (2015). Omaha's Henry Doorly Zoo Announces 15 Year Master Plan.

Supplemental videos:

1. TEDx Talks. (2016). Zoos of the Future | Keith Lovett | TEDxNewBedford.
2. The Cincinnati Zoo & Botanical Garden. (2018). Cincinnati Zoo "More Home to Roam" Campaign Video.
3. WYFF News 4. (2011). Community to Decide Greenville Zoo's Future.
4. The Calgary Zoo. (2013). The Calgary Zoo Announces 20 - Year Master Plan.
5. The Florida Aquarium. (2011). Rising Tides: The Campaign to Grow The Florida Aquarium.

Virtual guest speakers:

- Erin Valley Donato, Sustainability Manager, Houston Zoo
- Tony Vecchio, Executive Director, Jacksonville Zoo & Gardens

September 9: Special design and staffing considerations

Accessibility, demographics of zoo staff and visitors, AZA's 5th promise

Assigned readings:

1. Lukins, J.M. & Szendrey, S. (2024). Access and Inclusion Go to the Zoo. Journal of Museum Education. 49 (4): 486-497.
2. Walters, G., Sithole, S., Hymas, O. (2024). Zoos and aquariums are changing how they engage with indigenous peoples and local communities. World Associations of Zoos and

Aquariums (WAZA) News. https://serval.unil.ch/resource/serval:BIB_57C41955FD7C.P001/REF.pdf
3. Shore, L. M., Cleveland, J. N., & Sanchez, D. (2018). Inclusive workplaces: A review and model. Human Resource Management Review, 28(2), 176-189.
4. Zookeeping isn't common in the Black community. This Black zookeeper wants to change that. (2021). Washington Post. https://www.washingtonpost.com/local/zookeeping-isnt-common-in-the-black-community-this-black-zookeeper-wants-to-change-that/2021/10/18/4c5c91aa-302a-11ec-a1e5-07223c50280a_story.html

Supplemental readings:

1. The Zookeeper. (2018). Zookeepers have a problem with diversity. Zookeeper Gear blog.
2. Murray, M.J. (2017). Developing diversity in veterinary medicine. JAVMA. 250 (1): 41.
3. Page, H. M. (2018). A Larger Table: Fostering Inclusion in Museums through Hiring Directors of Community Engagement. Master's Thesis, Buffalo State University.
4. Edgerton, A. (2018). Racial diversity in public garden internships (Doctoral dissertation, University of Delaware).
5. Strong, M. W. (2017). Still the Boys 'club. Women in the Museum: Lessons from the Workplace, 62.

Supplemental web resources:

1. Association of Zoos & Aquariums. (2020). AZA Board of Directors Position Statement. aza_bod_statement_deai.pdf
2. AZA. (2016). Diversity & Inclusion Policy.
3. AZA. (2020). Diversity Committee.
4. AZA. (2020). Visitor demographics.
5. AZA. (2020). Angela Peterson Excellence in Diversity Award.
6. Ashe, D. (2018). Bridging the Gap. AZA.
7. Chicago Zoological Society's Brookfield Zoo. (n.d.). Diversity at CZS.
8. San Diego Zoo Global. (2020). Diversity and inclusion initiative.

Supplemental videos:

1. Association of Zoos & Aquariums. (2022). Advancing AZA's Fifth Promise: Everyone Has a Part to Play.
2. Talks at Columbia. (2015). Why Diversity Matters | Katherine Phillips | Talks@Columbia.
3. TEDX Talks. (2018). INCLUSION over Diversity | Kenyona Matthews | TEDxAkron.
4. TEDx Talks (2019). On Diversity: Access Ain't Inclusion | Anthony Jack | TEDxCambridge.
5. TEDx Talks. (2014). The science of inclusion: Quinetta Roberson at TEDxVillanovaU.
6. TEDx Talks. (2015). Practical diversity: taking inclusion from theory to practice | Dawn Bennett-Alexander | TEDxUGA.

Virtual guest speaker:

- Dr. Jo-Elle Mogerman, Director, St. Louis Zoo North Campus
- Curtis Bennett, Director of Equity & Community Engagement, National Aquarium

Theme II: Zoo ethics, design, animal care, and wellness

September 11: Zoo ethics and wellness-inspired design
Hour 1: The ethics of keeping animals in captivity, the influence of animal welfare organizations, and anti-zoo groups
Hour 2: Features, types, and considerations for designs that promote animal wellness
Assigned readings:

1. Minteer, B. A., & Collins, J. P. (2013). Ecological ethics in captivity: Balancing values and responsibilities in zoo and aquarium research under rapid global change. Ilar Journal, 54(1), 41-51.
2. Wallace, K. (2016). After gorilla shooting, are zoos becoming 'obsolete'? CNN.
3. Ranganathan, R. (2017). Zoos are prisons for animals – no one needs to see a depressed penguin in the flesh. The Guardian.
4. PETA. n.d. Zoos: Pitiful Prisons.

Supplementary readings:

1. Kreger, M.D., & Hutchins, M. (2010). Ethics of Keeping Mammals in Zoos and Aquariums. In: Wild Mammals in Captivity: Principles & Techniques for Zoo Management.
2. Rees, P.A. (2011). Chapter 6: Ethics and zoos. An Introduction to Zoo Biology & Management.

Supplementary web resources:

1. Berkoff, M. (2017). Zoo Ethics and the Challenges of Compassionate Conservation. Psychology Today.
2. Ganzert, R. (2017). Zoos Are Not Prisons. They Improve the Lives of Animals. Time Magazine.
3. Block, M. (2005). The Ethics of the Zoo.

Supplementary videos:

1. BBC. (2016). Horizon explores the existence of Zoos - Horizon: Should We Close Our Zoos? - BBC Two.
2. Above the Noise. (2019). Are Zoos Good or Bad for Animals?
3. TEDx Talks. (2014). Why We Need Zoos | Gabriela Mastromonaco | TEDxToronto.
4. TEDx Talks. (2014). Animal rights -- birth of an activist | Simone Reyes | TEDxOrangeCoast.
5. Inside Edition. (2017). Why Zoos Are Targets for Closure After 'Greatest Show On Earth' Ends.

Virtual guest speaker(s):

- Dr. Terry Maple, Professor-in-Residence & Director of Wildlife Wellness, Jacksonville Zoo & Gardens

September 16: Captive animal behavior, enrichment, & training
Understanding, managing, and enriching the behavior of captive animals, techniques for monitoring captive animal behavior and training
Assigned readings:

1. Rees, P.A. (2011). Chapter 10: Zoo animal behavior, enrichment and training. An Introduction to Zoo Biology & Management.

2. Elsbeth McPhee, M. & Carlstead, K. (2010). The Importance of Maintaining Natural Behaviors in Captive Mammals. In: Wild Mammals in Captivity: Principles & Techniques for Zoo Management.
3. Melfi, V. (2013). Is training zoo animals enriching? Applied Animal Behaviour Science, 147(3-4), 299-305.

Supplemental readings:

1. Veasey, J. & Hammer, G. (2010). Managing Captive Mammals in Mixed Species Communities. In: Wild Mammals in Captivity: Principles & Techniques for Zoo Management.
2. Hill, S. P., & Broom, D. M. (2009). Measuring zoo animal welfare: theory and practice. Zoo Biology: Published in affiliation with the American Zoo and Aquarium Association, 28(6), 531-544.
3. Shyne, A. (2006). Meta-analytic review of the effects of enrichment on stereotypic behavior in zoo mammals. Zoo Biology: Published in affiliation with the American Zoo and Aquarium Association, 25(4), 317-337.
4. Davey, G. (2007). Visitors' effects on the welfare of animals in the zoo: A review. Journal of Applied Animal Welfare Science, 10(2), 169-183.

Supplemental web resources:

1. Lincoln Park Zoo. (2020). Understanding Animal Behavior.
2. Smith, L. (2014). Zoos Drive Animals Crazy. Slate.
3. Smithsonian's National Zoo. (2020). Animal Enrichment.
4. Association of Zoos & Aquariums. (2020). Managing Animal Enrichment and Training.
5. Association of Zoos & Aquariums. (2020). Behavior Scientific Advisory Group.

Supplemental Videos:

1. North Carolina Zoo. (2019). UNTAMED SCIENCE: Animal Enrichment.
2. Association of Zoos & Aquariums. (2019). 2019 Annual Conference: Ken Ramirez.
3. Phoenix Zoo. (2020). Phoenix Zoo: Tiger Enrichment.
4. Smithsonian's National Zoo. (2015). Scent Enrichment at the Smithsonian's National Zoo.
5. Stlzootube. (2017). Polar bear training at Saint Louis Zoo.
6. IndianapolisZoo. (2020). Training with Walruses Aku and Ginger.
7. Houston Zoo. (2010). Jaguar Training and Enrichment.
8. Stanford University. (2014). Stanford students design and build enrichments for San Francisco Zoo animals.

Virtual guest speaker:

- Angela Miller, Zoological Manager of Behavioral Husbandry, Disney's Animal Kingdom®

September 18: Animal health & wellness

Hour 1: Animal handling, management, and treatment

Hour 2: Veterinary care – preventative medicine, infectious diseases, congenital issues

Assigned readings:

1. Kagan, R. & Veasey. (2010). Challenges of Zoo Animal Welfare. In: Wild Mammals in Captivity: Principles & Techniques for Zoo Management.

2. Fernandes Cipreste, C., et al. (2010). How to Develop a Zoo-Based Environmental Enrichment Program: Incorporating Environmental Enrichment into Exhibits. In: Wild Mammals in Captivity: Principles & Techniques for Zoo Management.

Supplemental readings:

1. Rees, P.A. (2011). Chapter 11: Animal welfare and veterinary care. An Introduction to Zoo Biology & Management.
2. Hill, S. P., & Broom, D. M. (2009). Measuring zoo animal welfare: theory and practice. Zoo Biology: Published in affiliation with the American Zoo and Aquarium Association, 28(6), 531-544.
3. West, G., Heard, D. J., & Caulkett, N. (Eds.). (2014). Zoo animal and wildlife immobilization and anesthesia.

Supplemental web resources:

1. Smithsonian's National Zoo & Conservation Biology Institute. (2020). Zoo 101: Animal Health and Welfare.
2. Lincoln Park Zoo. (2020). Zoo Animal Health Network.
3. Woodland Park Zoo. (2020). Excellence in Animal Care and Health.
4. Wildlife Conservation Society. (2020). One World One Health Zoological Health Program.
5. Nashville Zoo. (2020). HCA Healthcare Veterinary Center.

Supplemental videos:

1. Denver Zoo. (2018). Wild About Denver Zoo: Veterinary Care.
2. Georgia Aquarium. (2016). STEAM Forward Ep. 3: Veterinary Operations at Georgia Aquarium (Activity Breaks).
3. NC State College of Veterinary Medicine. (2019). Behind the Scenes with the N.C. Zoo Veterinarian.
4. News4Jax. (2018). Wild Walkabouts: Animal hospital at the Jacksonville Zoo.
5. Columbus Zoo & Aquarium. (2017). Becoming a Zoo Vet – Dr. Jimmy Johnson Interview.

Virtual guest speaker:

- Dr. Yousef Jafarey, Veterinarian, Jacksonville Zoo & Gardens

September 23: Nutrition & feeding behavior

Food, energy, digestion, nutritional issues, food prep, and feeding behavior

Assigned readings:

1. Kirk Baer, C., et al. (2010). Contemporary Topics in Wild Mammal Nutrition. In: Wild Mammals in Captivity: Principles & Techniques for Zoo Management.
2. Henry, B., et al. (2010). Quality Control Aspects of Feeding Wild Mammals in Captivity. In: Wild Mammals in Captivity: Principles & Techniques for Zoo Management.

Supplemental readings:

1. Rees, P.A. (2011). Chapter 8: Nutrition and feeding. An Introduction to Zoo Biology & Management.
2. Kawata, K. (2008). Zoo animal feeding: a natural history viewpoint. Der Zoologische Garten, 78(1), 17-42.

3. Lindburg, D. G. (1988). Improving the feeding of captive felines through application of field data. Zoo biology, 7(3), 211-218.
4. Hatt, J. M., et al. (2006). Browse silage in zoo animal nutrition: feeding enrichment of browsers during winter. Zoological Library, 201-204.
5. Robbins, C. T. (1993). Wildlife feeding and nutrition. Academic Press.
6. Cheeke, P. R., & Dierenfeld, E. S. (2010). Comparative animal nutrition and metabolism. CABI.
7. Klasing, K. C. (1998). Comparative avian nutrition. Cab International.

Supplemental web resources:

1. AZA Nutrition Advisory Group. (2020).
2. St. Louis Zoo. (2020). Animal Food & Nutrition Center.
3. Brookfield Zoo. (2020). Zoo Nutrition Service.
4. Nijboer, J. (2015). Nutrition in Zoo Carnivores. Merck Veterinary Manual.
5. Nijboer, J. (2015). Overview of Nutrition: Exotic and Zoo Animals. Merck Veterinary Manual.

Supplemental videos:

1. Smithsonian. (2009). Feeding the Animals at the Smithsonian's National Zoo.
2. Cincinnati Zoo & Botanical Garden. (2017). What Does it Take to Feed All the Animals - Cincinnati Zoo.
3. Brookfield Zoo. (2020). Bringing the Zoo to You: Animal Nutrition.
4. Denver Zoo. (2017). Denver Zoo's carcass feeding program provides nutrition and enrichment.
5. Columbus Zoo & Aquarium. (2016). Wildlife and Wild Places with Tom Stalf - Animal Nutrition Center.

Virtual guest speaker:

- Dr. Heidi Bissell, Zoo Nutritionist, Busch Gardens, Tampa
- Dr. Jennifer Watts, Director of Nutrition, Chicago Zoological Society/Brookfield Zoo

September 25: Special care – Great apes, elephants, & orcas

1st 40 minutes: Great apes: Cognitive enrichment & psychological science in the zoo
2nd 40 minutes: Managing care for elephants and inheriting the burden of circus animals
3rd 40 minutes: Shamu, *Blackfish*, Sea World, and the future of marine mammals in captivity

Assigned readings:

1. Maple, T.L. (2016). Chapter 6: Psychological Science in the Zoo. Professor in the Zoo: Designing the Future of Wildlife in Human Care. Red Leaf Press, Fernandina Beach, FL, USA.
2. Maple, T.L. (2016). Chapter 7: Equity for Elephants. Professor in the Zoo: Designing the Future of Wildlife in Human Care. Red Leaf Press, Fernandina Beach, FL, USA.
3. Joseph, B. & Antrim, J. (2010). Special Considerations for the Maintenance of Marine Mammals in Captivity. In: Kleiman, D.G., Thompson, K.V., & Baer, C.K. (2010). Wild Mammals in Captivity: Principles & Techniques for Zoo Management. The University of Chicago Press, IL, USA.

Supplementary readings:

1. Maple, T.L. (2016). Chapter 8: Beyond Blackfish: Thinking outside the Aquatic Box. Professor in the Zoo: Designing the Future of Wildlife in Human Care. Red Leaf Press, Fernandina Beach, FL, USA.
2. Off Exhibit Podcast. (2015). Caring for African Elephants. https://www.marylandzoo.org/news-and-updates/2015/11/off-exhibit-caring-african-elephants/
3. Wells, D. L. (2005). A note on the influence of visitors on the behaviour and welfare of zoo-housed gorillas. *Applied Animal Behaviour Science*, *93*(1-2), 13-17.
4. Leeds, A., Boyer, D., Ross, S. R., & Lukas, K. E. (2015). The effects of group type and young silverbacks on wounding rates in western lowland gorilla (Gorilla gorilla gorilla) groups in North American zoos. *Zoo biology*, *34*(4), 296-304.
5. Leeds, A., Elsner, R., & Lukas, K. E. (2016). The effect of positive reinforcement training on an adult female western lowland gorilla's (Gorilla gorilla gorilla) rate of abnormal and aggressive behavior. *Animal Behavior and Cognition*, *3*(2), 78-87.
6. Gartner, M. C., & Weiss, A. (2018). Studying primate personality in zoos: Implications for the management, welfare and conservation of great apes. *International Zoo Yearbook*, *52*(1), 79-91.
7. Clark, F. E. (2013). Marine mammal cognition and captive care: A proposal for cognitive enrichment in zoos and aquariums. *Journal of Zoo and Aquarium Research*, *1*(1), 1-6.
8. Brando, S., Broom, D. M., Acasuso-Rivero, C., & Clark, F. (2018). Optimal marine mammal welfare under human care: Current efforts and future directions. *Behavioural processes*, *156*, 16-36.
9. Carlstead, K., Mench, J. A., Meehan, C., & Brown, J. L. (2013). An epidemiological approach to welfare research in zoos: The elephant welfare project. *Journal of Applied Animal Welfare Science*, *16*(4), 319-337.
10. Carlstead, K., Paris, S., & Brown, J. L. (2019). Good keeper-elephant relationships in North American zoos are mutually beneficial to welfare. *Applied Animal Behaviour Science*, *211*, 103-111.
11. Greco, B. J., Meehan, C. L., Miller, L. J., Shepherdson, D. J., Morfeld, K. A., Andrews, J., ... & Mench, J. A. (2016). Elephant management in North American zoos: environmental enrichment, feeding, exercise, and training. *PloS one*, *11*(7), e0152490.

Supplemental web resources:

1. Zoo Atlanta. (2018). Studying gorillas at the zoo and in the wild.
2. Lincoln Park Zoo. (2020). Ape cognition studies.
3. Zoological Society of Milwaukee. (2017). Great Care for Great Apes.
4. Conway, W. (2013). National Geographic blog. Elephants in Captivity.
5. Oregon Zoo. (2020). Oregon Zoo's vision for our elephants.
6. St. Louis Zoo. (2020). Taking Care of Our Elephants.
7. Sea World. (2020). Animal Care.
8. Raja, T. (2014). SeaWorld Says It Has to Keep Orcas in Captivity to Save Them. Mother Jones.
9. Daly, N. (2019). Orcas don't do well in captivity: here's why. National Geographic.

Supplemental videos:

1. ClevelandZooSociety. (2015). Conservation Chat: Dian Fossey Gorilla Fund at Cleveland Metroparks Zoo.
2. Riverbanks Zoo and Garden. (2016). Gorilla Enrichment at Riverbanks Zoo and Garden.
3. Chicago Tribune. (2014). Apes and touch screens at the Lincoln Park Zoo.
4. Oregon Zoo. (2016). Chimp turns videographer with GoPro enrichment.
5. Smithsonian's National Zoo. (2013). Apps for Apes: Smithsonian Orangutans using iPads for Enrichment.
6. Omaha Zoo. (2020). African Elephant Training | Omaha's Henry Doorly Zoo and Aquarium.
7. Dallas Zoo. (2016). Letting Elephants be Elephants at the Dallas Zoo.
8. Cincinnati Zoo & Botannical Garden. (2018). Elephant Enrichment Tree - Cincinnati Zoo.
9. SeaWorld® Parks & Entertainment. (2019). Go Behind The Scenes With SeaWorld Trainers And Learn How We Care For Orcas.
10. Indianapolis Zoo. (2020). Dolphin Dome Training.
11. Mystic Aquarium. (2019). Enriching Animals Lives In A Unique Way - Aquarium Rehab.

Virtual guest speaker:

- Dr. Kristen Lukas, Curator of Conservation and Science, Cleveland Metroparks Zoo
- Mike McClure, General Curator/Elephant Manager, The Maryland Zoo in Baltimore

September 30: Ensuring the health & safety of animals, staff, and visitors

Exhibit size, shape, substrate, temperature, water, light, humidity, fences, barriers, trenches, off-exhibit areas, emergency situations, and escape planning

Assigned readings:

1. Rosenthal, M. & Xanten W. (2010). Safety Considerations in a Zoological Park. In: Kleiman, D.G., Thompson, K.V., & Baer, C.K. (2010). Wild Mammals in Captivity: Principles & Techniques for Zoo Management. The University of Chicago Press, IL, USA.
2. Rosenthal, M. & Xanten, W. (2010). Structural and Keeper Considerations in Exhibit Design. In: Kleiman, D.G., Thompson, K.V., & Baer, C.K. (2010). Wild Mammals in Captivity: Principles & Techniques for Zoo Management. The University of Chicago Press, IL, USA.

Supplemental readings:

1. Fernandez, E. J., Tamborski, M. A., Pickens, S. R., & Timberlake, W. (2009). Animal–visitor interactions in the modern zoo: Conflicts and interventions. Applied Animal Behaviour Science, 120(1-2), 1-8.
2. Hill, D. J., Langley, R. L., & Morrow, W. M. (1998). Occupational injuries and illnesses reported by zoo veterinarians in the United States. Journal of zoo and wildlife medicine, 371-385.

Supplemental web resources:

1. Association of Zoos & Aquariums. (2020). Safety & Security.
2. Association of Zoos & Aquariums. (2015). Zoo & Aquarium Safety: Example Practices.

3. Louisville Zoo. (2020). Tips and Safety Guidelines.
4. Bittel, J. (2019). How to be safe while visiting the zoo or other wildlife facility. National Geographic.
5. Smithsonian National Zoo. n.d. Safety at the Zoo.

Supplemental videos:

1. CBS This Morning. (2016). Veteran zookeeper mauled by tiger and killed.
2. National Geographic. (2008). Zoo-Tiger Escape | National Geographic.
3. ABC News. (2012). Toddler at Pittsburgh Zoo Killed in Painted Dog Exhibit.
4. Today. (2019). Jaguar Attacks Woman Who Jumped Zoo Barrier For Selfie | TODAY.
5. CBS News. (2019). Woman climbs into lion exhibit at NYC zoo.

Virtual guest speaker:

- Dan Maloney, Director of Animal Care & Conservation, Jacksonville Zoo & Gardens

Theme III: Captive breeding and ex-situ conservation

October 2: Zoos as an ark: Reproductive biology & captive breeding

Zoos have largely moved away from positioning themselves as 'arks', but the Amphibian Ark has proven successful in repatriating populations of amphibians under dire threat

Assigned readings:

1. Mendelson, J.R. (2018). Frogs in Glass Boxes: Responses of Zoos to Global Amphibian Extinctions. In: Minteer, B.A., Maienschein, J., & Collins, J.P. (eds.). The Ark and Beyond: The Evolution of Zoos and Aquarium Conservation. The University of Chicago Press, Illinois, USA.
2. Clarke, A. G. (2009). The Frozen Ark Project: the role of zoos and aquariums in preserving the genetic material of threatened animals. International Zoo Yearbook. 43(1), 222-230.

Supplemental readings:

1. Browne, R. K., Wolfram, K., García, G., Bagaturov, M. F., & Pereboom, Z. J. J. M. (2011). Zoo-based amphibian research and conservation breeding programs. Amphibian and Reptile Conservation, 5(3), 1-14.
2. Tapley, B., Bradfield, K. S., Michaels, C., & Bungard, M. (2015). Amphibians and conservation breeding programmes: do all threatened amphibians belong on the ark?. Biodiversity and Conservation, 24(11), 2625-2646.
3. Biega, A. M. (2017). Evaluating the role of zoos and ex situ conservation in global amphibian recovery (Doctoral dissertation, Science: Biological Sciences Department).

Supplemental web resources:

1. Zoo Atlanta. (2020). Amphibian Ark.
2. Karlsdóttir, B. (2018). General guidelines for managers and supporters of amphibian captive breeding programmes. Amphibian Ark.
3. The Frozen Ark. (2020). Welcome.
4. Kolbert, E. (2013). Building the Ark. National Geographic.
5. Johnson, S. (2018). Ark, lifeboat, or something wilder? Future of zoos under debate. Chicago Tribune.

Supplemental videos:

1. Zoo Atlanta. (2012). Zoo Atlanta Amphibian Discovery Hangout On Air.
2. Mutual of Omaha's Wild Kingdom. (2017). Wild Kingdom | On Location | Panamanian Golden Frog.
3. ZSL - Zoological Society of London. (2014). Saving The Mountain Chicken Frog | Breeding.
4. LA Zoo. (2018). 2,000+ Endangered Frogs Hatch at L.A. Zoo.
5. San Diego Zoo Kids. (2019). Raising Hellbenders at the St. Louis Zoo.
6. AmphibianArk. (2015). Join Amphibian Ark to help save amphibians.

Virtual guest speaker:

- Dr. Joseph Mendelson, Herpetologist, Zoo Atlanta

October 7: Captive breeding, Studbooks, Species Survival Plans, and coordination across scales

Record keeping via Studbooks, managing captive populations through Species Survival Plans (SSPs), planning and coordination

Assigned readings:

1. Rees, P.A. (2011). Chapter 9: Reproductive biology. An Introduction to Zoo Biology & Management. John Wiley & Sons, Ltd, West Sussex, U.K.
2. Carlstead, K., & Shepherdson, D. (1994). Effects of environmental enrichment on reproduction. Zoo biology, 13(5), 447-458.
3. Rees, P.A. (2011). Chapter 13: Record keeping. An Introduction to Zoo Biology & Management. John Wiley & Sons, Ltd, West Sussex, U.K.
4. Allard, R., Willis, K., Lees, C., Smith, B., & Hiddinga, B. (2010). Regional Collection Planning for Mammals. In: Kleiman, D.G., Thompson, K.V., & Baer, C.K. (2010). Wild Mammals in Captivity: Principles & Techniques for Zoo Management. The University of Chicago Press, IL, USA.
5. Lacy, R. C. (2013). Achieving true sustainability of zoo populations. Zoo Biology, 32(1), 19-26.

Supplemental readings:

1. Rees, P.A. (2011). Chapter 12: Collection planning and captive breeding (12.1-12.4). An Introduction to Zoo Biology & Management. John Wiley & Sons, Ltd, West Sussex, U.K.
2. Penfold, L. M., Powell, D., Traylor-Holzer, K., & Asa, C. S. (2014). "Use it or lose it": characterization, implications, and mitigation of female infertility in captive wildlife. Zoo Biology, 33(1), 20-28.
3. Brown, J. L., Graham, L. H., Wielebnowski, N., Swanson, W. F., Wildt, D. E., & Howard, J. G. (2001). Understanding the basic reproductive biology of wild felids by monitoring of faecal steroids. Journal of reproduction and fertility. Supplement, 57, 71-82.
4. Wildt, D. E., Brown, J. L., Bush, M., Barone, M. A., Cooper, K. A., Grisham, J., & Howard, J. G. (1993). Reproductive status of cheetahs (Acinonyx jubatus) in North American zoos: the benefits of physiological surveys for strategic planning. Zoo Biology, 12(1), 45-80.

5. Mellen, J. D. (1993). A comparative analysis of scent-marking, social and reproductive behavior in 20 species of small cats (Felis). American Zoologist, 33(2), 151-166.
6. Mallinson, J. J. (1995). Conservation breeding programmes: an important ingredient for species survival. Biodiversity & Conservation, 4(6), 617-635.
7. Songsasen, N., & Rodden, M. D. (2010). The role of the species survival plan in maned wolf Chrysocyon brachyurus conservation. International zoo yearbook, 44(1), 136-148.

Supplemental web resources:

1. White Oak Conservation. (2020). Animal Programs.
2. South-East Zoo Alliance for Reproduction & Conservation. (2020). About SEZARC: What We Do.
3. San Diego Zoo Institute for Conservation Research. (2020). Reproductive Sciences.
4. Smithsonian's National Zoo & Conservation Biology Institute. (2020). Wildlife Endocrinology.
5. North Carolina Zoo. (2020). Animal Behavior and Biology.
6. Association of Zoos & Aquariums. (2020). Species Survival Plan (SSP) Programs.
7. Woodland Park Zoo. (2020). Conservation Breeding.
8. Brookfield Zoo. (2020). Species Survival Plans.
9. Zoo New England. (2020). Species Survival Plans.
10. Cameron Park Zoo. (2020). SSP.

Supplementary videos:

1. University of North Florida. (2014). UNF/SEZARC Partner to Maximize Reproduction in Endangered Animals.
2. White Oak Conservation. (2020). White Oak Conservation Promotional Video.
3. BBC Earth. (2018). Giant Pandas' Mating Attempt | BBC Earth.
4. TurtleSurvival. (2015). New Hope for the World's Most Endangered Turtle.
5. AP Archive. (2019). Family planning key to successful cheetah breeding.
6. CBS This Morning. (2019). The fight to save the northern white rhino.
7. San Diego Zoo. (2011). "Super Diego" the Galapagos Tortoise Helped Save His Species.
8. Audubon Nature Institute. (2018). Saving Whooping Cranes from Extinction.
9. North Carolina Zoo. (2009). NC Zoo Supports Red Wolf Captive Program.
10. ClevelandZooSociety. (2017). Healthy Populations - Species Survival Plans.
11. Columbus Zoo and Aquarium. (2016). Bon Voyage, Nora!
12. TheLVZoo. (2011). Animal Species Survival Plan at the Lehigh Valley Zoo.
13. KPVI News. (2017). Species Survival Plan (Idaho Falls Zoo).
14. First Coast News. (2019). Jacksonville Zoo gets first litter of giant river otter pups.

Virtual guest speaker:

- Dr. Linda Penfold, Director, South-East Zoo Alliance for Reproduction & Conservation & White Oak Conservation

October 9: Genetics in small populations & technological advances in captive breeding

Hour 1: Conservation genetics, managing small populations, and genetic rescue

Hour 2: Artificial techniques: insemination, cloning, and reviving extinct species

Assigned readings:

1. Ryder, O.A. (2018). Opportunities and Challenges for Conserving Small Populations: An Emerging Role for Zoos in Genetic Rescue. In: Minteer, B.A., Maienschein, J., & Collins, J.P. (eds.). The Ark and Beyond: The Evolution of Zoos and Aquarium Conservation. The University of Chicago Press, Illinois, USA.
2. Ballou, J.D., Lees, C., Faust, L.J., Long, S., Lynch, C., Bingaman Lackey, L., & Foose, T.J. (2010). Demographic and Genetic Management of Captive Populations. In: Kleiman, D.G., Thompson, K.V., & Baer, C.K. (2010). Wild Mammals in Captivity: Principles & Techniques for Zoo Management. The University of Chicago Press, IL, USA.
3. Tubbs, C.W. (2018). Advancing Laboratory-based Zoo Research to Enhance Captive Breeding of Southern White Rhinoceros. In: Minteer, B.A., Maienschein, J., & Collins, J.P. (eds.). The Ark and Beyond: The Evolution of Zoos and Aquarium Conservation. The University of Chicago Press, Illinois, USA.

Supplemental readings:

1. Friese, C. (2018). Cloning in the Zoo: When Zoos Become Parents. In: Minteer, B.A., Maienschein, J., & Collins, J.P. (eds.). The Ark and Beyond: The Evolution of Zoos and Aquarium Conservation. The University of Chicago Press, Illinois, USA.
2. Ogden, R., Chuven, J., Gilbert, T., Hosking, C., Gharbi, K., Craig, M., ... & Senn, H. (2020). Benefits and pitfalls of captive conservation genetic management: Evaluating diversity in scimitar-horned oryx to support reintroduction planning. Biological Conservation, 241, 108244.

Supplemental web resources:

1. Cincinnati Zoo & Botanical Garden. (2020). Center for Conservation and Research of Endangered Wildlife (CREW).
2. Omaha Zoo. (2020). Conservation Genetics.
3. Smithsonian's National Zoo & Conservation Biology Institute. (2020). Center for Conservation Genetics.
4. San Diego Zoo Institute for Conservation Research. (2020). Conservation Genetics.
5. Royal Zoological Society of Scotland. (2020). Applied Conservation Genetics.

Supplemental videos:

1. TEDx Talks. (2013). Genetic rescue and biodiversity banking: Oliver Ryder at TEDxDeExtinction.
2. PBS NewsHour Student Reporting Labs. (2014). Detroit Zoo uses captive breeding to 'sustain zoo population'.
3. American Museum of Natural History. (2012). Science Bulletins: Cloning and Conservation.
4. The Cincinnati Zoo & Botanical Garden. (2011). Pallas' Cats Born from Artificial Insemination - Cincinnati Zoo.
5. KPBS. (2018). Artificial Insemination Yields Rhino Embryo At Zoo's Safari Park.
6. Columbus Zoo and Aquarium. (2020). History Making Cheetah Cubs Born Through IVF.
7. chicagobotanicgarden. (2019). What do genetics have to do with conservation? - Emily Orr.

Virtual guest speaker:

- Dr. Terri Roth, Director of CREW, Cincinnati Zoo & Botanical Garden

Theme IV: Zoo education

October 14: Formal and information presentations
Keeper chats, public feedings, presentations, and shows
Assigned readings:

1. Grazian, D. (2015). Chapter 5: Bring on the Dancing Horses: American Zoos in the Entertainment Age. American Zoo: A Sociological Safari. Princeton University Press, New Jersey, USA.
2. Balmford, A., Leader-Williams, N., Mace, G.M., Manica, A. Walter, O., West, C. & Zimmermann, A. (2007). Message received? Quantifying the impact of informal conservation education on adults visiting UK zoos. In: Zimmermann, A., Hatchwell, M., Dickie, L, & West, C. (eds.). Zoos in the 21st Century: Catalysts for Conservation? Cambridge University Press, UK.

Supplemental readings:

1. Miller, L. J., Zeigler-Hill, V., Mellen, J., Koeppel, J., Greer, T., & Kuczaj, S. (2013). Dolphin shows and interaction programs: benefits for conservation education? Zoo biology, 32(1), 45-53.
2. Pearson, E. L., Lowry, R., Dorrian, J., & Litchfield, C. A. (2014). Evaluating the conservation impact of an innovative zoo-based educational campaign: 'Don't Palm Us Off' for orang-utan conservation. Zoo biology, 33(3), 184-196.
3. Jensen, E. (2014). Evaluating children's conservation biology learning at the zoo. Conservation Biology, 28(4), 1004-1011.
4. Ballantyne, R., Packer, J., Hughes, K., & Gill, C. (2018). Post-visit reinforcement of zoo conservation messages: The design and testing of an action resource website. Visitor Studies, 21(1), 98-120.

Supplemental web resources:

1. Florida Aquarium. (2020). Education.
2. Sea World Orlando. (2020). Shows and presentations.
3. Brevard Zoo. (2020). Animal Encounters.
4. Dallas Zoo. (2020). Daily Zookeeper Chats.
5. South Carolina Aquarium. (2020). Daily Programs.
6. San Diego Zoo. (2020). Shows.
7. Columbus Zoo. (2020). Surfin Safari.
8. SeaWorld Orlando. (2020). Live Family Friendly Shows & Presentations.

Supplemental videos:

1. Fort Worth Zoo. (2020). Fort Worth Zoo keeper chat – porcupines.
2. Memphis Zoo. (2019). Keeper Chat: Global Tiger Day.
3. New England Aquarium. (2020). Virtual Visit: Penguin Feeding!
4. Eric Homan Media Productions. (2020). Columbus Zoo: June 2016 - Animals on Safari.
5. SeaWorld® Parks & Entertainment. (2016). A look Inside SeaWorld's Revamped Orca Shows.

Virtual guest speaker(s):

- Debbi Stone, Vice President of Education, Florida Aquarium

October 16: Exhibit-based educational opportunities

Hour 1: On-exhibit opportunities – Signage, exhibit interpretation, messaging, docents
Hour 2: Hands on – Animal encounters, petting zoos, and touch tanks
Readings:

1. Grajal, A. Luebke, J.F., DeGregoria Kelly, L.A. (2018). Why Zoos Have Animals: Exploring he Complex Pathway from Experiencing Animals to Pro-environmental Behaviors. In: Minteer, B.A., Maienschein, J., & Collins, J.P. (eds.). The Ark and Beyond: The Evolution of Zoos and Aquarium Conservation. The University of Chicago Press, Illinois, USA.
2. Sterling, E., Lee, J., & Wood, T. (2007). Conservation education in zoos: an emphasis on behavioral change. In: Zimmermann, A., Hatchwell, M., Dickie, L, & West, C. (eds.). Zoos in the 21st Century: Catalysts for Conservation? Cambridge University Press, UK.
3. Godinez, A. M., & Fernandez, E. J. (2019). What is the Zoo Experience? How Zoos Impact a Visitor's Behaviors, Perceptions, and Conservation Efforts. Frontiers in psychology, 10, 1746.

Supplemental readings:

1. Reading, R.P. & Miller, B.J. (2007). Attitudes and attitude change among zoo visitors. In: Zimmermann, A., Hatchwell, M., Dickie, L, & West, C. (eds.). Zoos in the 21st Century: Catalysts for Conservation? Cambridge University Press, UK.
2. Rees, P.A. (2011). Chapter 14: Education, research and zoo visitor behavior. An Introduction to Zoo Biology & Management. John Wiley & Sons, Ltd, West Sussex, U.K.
3. Pennisi, L., Lackey, N. Q., & Holland, S. M. (2017). Can an immersion exhibit inspire connection to nature and environmentally responsible behavior?
4. Gwynne, J.A. (2007). Inspiration for conservation: moving audiences to care. In: Zimmermann, A., Hatchwell, M., Dickie, L, & West, C. (eds.). Zoos in the 21st Century: Catalysts for Conservation? Cambridge University Press, UK.
5. Rautman, E., Ogden, J. & Winsten, K. (2010). Visitors, Conservation Learning, and the Design of Zoo and Aquarium Experiences. In: Kleiman, D.G., Thompson, K.V., & Baer, C.K. (2010). Wild Mammals in Captivity: Principles & Techniques for Zoo Management. The University of Chicago Press, IL, USA.
6. Mony, P. R., & Heimlich, J. E. (2008). Talking to visitors about conservation: Exploring message communication through docent–visitor interactions at zoos. *Visitor Studies*, *11*(2), 151-162.

Supplemental web resources:

1. Wojton, M. & Heimlich, J.E. (2016). iSaveSpecies—Summative Evaluation Report. Center for Research and Evaluation.
2. International Zoo Educators Association. n.d. Interactive Zoo Signage.
3. St. Louis Zoo. n.d. Conservation Conversation.
4. Myers, C. & Jenike, S. (2014). Saving Species: Socially-Networked Exhibits for Science Inquiry and Public Action. NSF.

Supplemental videos:

1. Denver Zoo (2018). Meet the Animal Ambassadors who will be at Do At The Zoo!
2. Zoo Atlanta. (2020). Virtual Petting Zoo Tour.
3. City of Greenville, South Carolina. (2017). Become a Greenville Zoo Docent.
4. Jacksonville Zoo & Gardens. (2020). Behind the Scene Stingray Bay.
5. WAVY TV 10. (2020). Virginia Zoo moves toward more inclusive, sensory-friendly visitor experience.

Virtual guest speaker(s):

- Thane Maynard, CEO, Cincinnati Zoo & Botanical Gardens
- Chris & Lynne Myers, Project Dragonfly at Miami University

October 21: Long-term, participatory, and immersive programs

Outreach, work-study, internships, citizen science, and immersive nature-based programs

Assigned readings:

1. Hart, R. A. (2008). Stepping back from 'The ladder': Reflections on a model of participatory work with children. In Participation and learning (pp. 19-31). Springer, Dordrecht.
2. Ardoin, N. M., Bowers, A. W., & Gaillard, E. (2020). Environmental education outcomes for conservation: A systematic review. Biological Conservation, 241, 108224.
3. Bruyere, B., Bynum, N., Copsey, J., Porzecanski, A., & Sterling, W. (2019). Conservation Leadership Capacity Building: a Landscape Study and Recommendations. National Geographic Society, Smithsonian Institute, Global Wildlife Conservation.

Supplemental readings:

1. Mulligan, M. P., Grant, C., Herget, J., Martell, E., & Melber, L. (2015). Partners in Fieldwork: empowering urban high school learners. Best Practices–Committee for Education and Cultural Action, 4, 85-94.
2. Rahm, J., Martel-Reny, M. P., & Moore, J. C. (2005). The role of afterschool and community science programs in the lives of urban youth. School Science and Mathematics, 105(6), 283-291.
3. Larson, L. R., Castleberry, S. B., & Green, G. T. (2010). Effects of an Environmental Education Program on the Environmental Orientations of Children from Different Gender, Age, and Ethnic Groups. Journal of Park & Recreation Administration, 28(3).
4. Tulloch, A. I., Possingham, H. P., Joseph, L. N., Szabo, J., & Martin, T. G. (2013). Realizing the full potential of citizen science monitoring programs. Biological Conservation, 165, 128-138.

Supplemental web resources:

1. Smithsonian Mason School of Conservation. (2020). Programs and Courses.
2. Jacksonville Zoo & Gardens. (2020). Internships.
3. Zoo Tampa. (2020). Intern at Zoo Tampa.
4. Florida Aquarium. (2020). Internships.
5. Zoo Miami. (2020). Internship Programs.
6. Shedd Aquarium. (2020). Work-study.

7. Shedd Aquarium. (2014). Underwater robotics.
8. Brookfield Zoo. (2020). College & High School Internship Program.
9. Lincoln Park Zoo. (2020). Internships

Supplemental videos:

1. TED. (2012). Ernesto Sirolli: Want to help someone? Shut up and listen!
2. Smithsonian's National Zoo. (2017). Smithsonian-Mason School of Conservation: Training the Next Generation
3. Disney Conservation. (2012). Students from The Nature Conservancy's LEAF Program Intern at the Disney Wilderness Preserve.
4. Cbpatriot8. (2015). Zoo Miami: Conservation Teen Scientist Program.
5. SeaWorld® Parks & Entertainment. (2015). Camp SeaWorld: An Amazing Week of Inspiration and Conservation.
6. Houston Zoo. (2015). Lucy Talks About the Houston Zoo Internship Program.
7. Lincoln Park Zoo. (2019). Zoo Intern Program: Bridging conservation and education with Chicago teens.

Virtual guest speaker:

- Dr. Ricardo Stanoss, Director of the Center for Learning Innovation, Smithsonian National Zoo and Conservation Biology Institute

October 23: Zoos and the media

Hour 1: TV: From Joan Embery and Jack Hannah, to Steve Irwin and Jeff Corwin
Hour 2: Movies & social media: From *Blackfish* and *The Tiger King*, to Harambe and Fiona
Assigned readings:

1. Maynard, L. (2018). Media framing of zoos and aquaria: From conservation to animal rights. Environmental Communication, 12(2), 177-190.
2. Brown, W. J. (2010). Steve Irwin's influence on wildlife conservation. Journal of Communication, 60(1), 73-93.
3. Burford, C., & Schutten, J. (2017). Internatural activists and the "Blackfish Effect": Contemplating captive orcas' protest rhetoric through a coherence frame. Frontiers in Communication. 1, 16.

Supplemental readings:

1. Hutchins, M. (2006). Death at the zoo: the media, science, and reality. Zoo Biology: Published in affiliation with the American Zoo and Aquarium Association, 25(2), 101-115.
2. Carr, N., & Cohen, S. (2011). The public face of zoos: images of entertainment, education and conservation. Anthrozoös, 24(2), 175-189.

Supplemental web resources:

1. Wallace, K. (2013). 'Blackfish' sparks debate over taking kids to animal parks. CNN.
2. O'Neill, L. (2016). Why Elephants in American Zoos May Be the New Orcas in Blackfish. Esquire.
3. Ogle, B. (2019). 'Blackfish' sparked positive new era for zoos, SeaWorld | Commentary. Orlando Sentinel.

Supplemental videos:

1. Johnny Carson. (2012). Baby Gorilla from San Diego Zoo: Orangutans on Johnny Carson's Tonight Show.

2. The Tonight Show Starring Jimmy Fallon. (2018). Kevin Hart Is Terrified of Robert Irwin's Animals.
3. Australia Zoo. (2007). Australia Zoo Tour with Steve Irwin.
4. CNN. (2013). "Blackfish" looks at whales in captivity.
5. Denver7 – The Denver Channel. (2020). 39 tigers from Netflix series 'Tiger King' are now living in a Colorado animal sanctuary.
6. The Cincinnati Zoo & Botanical Garden. (2017). Baby Hippo Fiona - Episode 1 The Beginning - Cincinnati Zoo.
    a. ABC News. (2016). Gorilla Killed After Child Falls Into Zoo Habitat.

Virtual guest speaker:

- Ron Magill, Goodwill ambassador and Communications Director, Zoo Miami

October 28: School & Teacher Programs

Field trips, outreach: Educational programs for students, teacher resources, workshops, professional development, and continuing education

Assigned readings:

1. Grazian, D. (2015). Chapter 4: Life Lessons: The Zoo as a Classroom. American Zoo: A Sociological Safari. Princeton University Press, New Jersey, USA.
2. Weinstein, M., Whitesell, E. R., & Schwartz, A. E. (2014). Museums, zoos, and gardens: How formal-informal partnerships can impact urban students' performance in science. Evaluation review, 38(6), 514-545.

Supplemental readings:

1. Davidson, S. K., Passmore, C., & Anderson, D. (2010). Learning on zoo field trips: The interaction of the agendas and practices of students, teachers, and zoo educators. Science Education, 94(1), 122-141.
2. Khalil, K., & Ardoin, N. (2011). Programmatic evaluation in association of zoos and aquariums–accredited zoos and aquariums: A literature review. Applied Environmental Education & Communication, 10(3), 168-177.
3. Randler, C., Baumgärtner, S., Eisele, H., & Kienzle, W. (2007). Learning at workstations in the zoo: A controlled evaluation of cognitive and affective outcomes. Visitor Studies, 10(2), 205-216.
4. Falk, J. H., & Dierking, L. D. (1997). School field trips: Assessing their long-term impact. Curator: The Museum Journal, 40(3), 211-218.
5. Sattler, S., & Bogner, F. X. (2017). Short-and long-term outreach at the zoo: Cognitive learning about marine ecological and conservational issues. Environmental Education Research, 23(2), 252-268.

Supplemental web resources:

1. Jacksonville Zoo & Gardens. (2020). School and Group Programs.
2. Woodland Park Zoo. (2020). Field Trip and Homeschool Resources.
3. Cleveland Metroparks Zoo. (2020). For Teachers.
4. San Diego Zoo Global. (2020). Teacher Workshops in Conservation Science.
5. Brookfield Zoo. (2020). Teacher Classes.
6. Bronx Zoo. (2020). On-site Professional Development.
7. Project Dragonfly at Miami University. (2020). Advanced Inquiry Program.

Supplemental videos:

1. The Maryland Zoo in Baltimore. (2019). Field Trip to the Maryland Zoo: Pre-Visit Video (Middle and High School).
2. KVIEvideo. (2019). Teaching Great Teachers – A Day at the Zoo (Fresno Chafee Zoo).
3. Denver Zoo. (2015). Denver Zoo's Advanced Inquiry Program.
4. Pittsburgh Zoo & PPG Aquarium. (2018). Education Programs at the Zoo.
5. Tedx Talks. (2014). No More Bad Coffee: Professional Development That Honors Teachers: Sheryl Chard at TEDxABQED.

Virtual guest speaker:

- Claire Lannoye-Hall, Curator of Education, Detroit Zoological Society
- Dr. Joy Kubarek, Co-Founder, Inform Evaluation & Research

Theme V: In-situ zoo Conservation

October 30: How do zoos contribute to the conservation of wild populations?

Captive breeding, reintroduction, generating revenue, community engagement, protected areas

Assigned readings:

1. Tribe, A., & Booth, R. (2003). Assessing the role of zoos in wildlife conservation. Human Dimensions of Wildlife. 8(1), 65-74.
2. Keulartz, J. (2015). Captivity for conservation? Zoos at a crossroads. Journal of Agricultural and Environmental Ethics. 28(2), 335-351.

Supplemental readings:

1. Miller, B., Conway, W., Reading, R. P., Wemmer, C., Wildt, D., Kleiman, D., Monfort, S., Rabinowitz, A., Armstrong, B., & Hutchins, M. (2004). Evaluating the conservation mission of zoos, aquariums, botanical gardens, and natural history museums. Conservation Biology, 18(1), 86-93.
2. Gusset, M., & Dick, G. (2010). 'Building a Future for Wildlife'? Evaluating the contribution of the world zoo and aquarium community to in situ conservation. International Zoo Yearbook, 44(1), 183-191.

Supplemental web resources:

1. Jacknsonville Zoo and Gardens. (2020). Conservation.
2. Disney's Animal Kingdom. (2020). Conservation Centers for Species Survival.
3. Zoo Miami. (2020). Conservation and Research Programs.
4. Florida Aquarium. (2020). Conservation.
5. Sea World Orlando. (2020). Conservation Efforts.
6. White Oak. (2020). Committed to saving species.
7. Bush Gardens Tampa. (2020). Sea World and Busch Gardens Conservation Fund.
8. Tampa Zoo at Lowry Park. (2020). Conservation.
9. Mote Marine Lab. (2020). Sharks and Rays Conservation Research Program.
10. St. Augustine Alligator Farm. (2020). Conservation and Research.
11. Santa Fe College Teaching Zoo. (2020). Conservation.
12. Sea Life Orlando Aquarium. (2020). Conservation.
13. Brevard Zoo. (2020). Conservation.
14. Palm Beach Zoo. (2020). Conservation.
15. Central Florida Zoo & Botanical Gardens. (2020). Conservation in Action.

16. Discovery Cove Orlando. (2019). Five ways discovery cove is making everyday earth day.
17. The Seas. (2020). Discovering Marine Life Conservation.
18. Lubee Bat Conservancy. (2020). Conservation Projects.
19. Lemur Conservation Foundation. (2020). Madagascar.
20. Lion Country Safari. (2020). Conservation Overview.

Supplemental videos:

1. Dallas Zoo. (2019). WHY ZOOS MATTER – Part 1: Conservation.
2. ZooTampa. (2019). Conservation is at Our Core.
3. Zoo Miami. (2019). Conservation Action Center at Zoo Miami Opening in 2020.
4. Mote Marine Laboratory & Aquarium. (2018). Mote Marine Laboratory Coral Reef Restoration at EMIC2R3.
5. EAZAvideo. (2010). Zoos and Conservation.

Virtual guest speaker(s):

- John Lukas, Curator of Wildlife Conservation, Jacksonville Zoo & Gardens and President, International Rhino Foundation
- Jody Palmer, Director of Conservation, Brevard Zoo

November 4: Rescue, rehabilitation, and emergency response

Emergency response to sick and injured wildlife, taxa under extreme threat of extinction

Assigned readings:

1. Adimey, N. M., Ross, M., Hall, M., Reid, J. P., Barlas, M. E., Diagne, L. W. K., & Bonde, R. K. (2016). Twenty-six years of post-release monitoring of Florida manatees (*Trichechus manatus latirostris*): evaluation of a cooperative rehabilitation program. Aquatic Mammals, 42(37), 391.
2. Maple, T.L., & Segura, V.D. (2018). Wildlife Wellness: A New Ethical Frontier for Zoos and Aquariums. In: Minteer, B.A., Maienschein, J., & Collins, J.P. (eds.). The Ark and Beyond: The Evolution of Zoos and Aquarium Conservation. The University of Chicago Press, Illinois, USA.

Supplemental readings:

1. Tisdell, C. A., Preece, H. J., Abdullah, S., & Beyer, H. L. (2017). Strategies to conserve the koala: cost-effectiveness considerations. Australasian Journal of Environmental Management, 24(3), 302-318.
2. Molina-López, R. A., Mañosa, S., Torres-Riera, A., Pomarol, M., & Darwich, L. (2017). Morbidity, outcomes and cost-benefit analysis of wildlife rehabilitation in Catalonia (Spain). PloS one, 12(7).
3. Sleeman, J. M., & Clark, E. E. (2003). Clinical wildlife medicine: a new paradigm for a new century. Journal of Avian Medicine and surgery, 17(1), 33-37.
4. Massey, J. G., Hampton, S., & Ziccardi, M. (2005, May). A cost/benefit analysis of oiled wildlife response. In International Oil Spill Conference (Vol. 2005, No. 1, pp. 463-466). American Petroleum Institute.

Supplemental web resources:

1. SeaWorld Orlando. (2020). Commitment to Animal Rescue, Rehabilitation, & Return.
2. Jacksonville Zoo & Gardens. (2020). Manatee Rescue and Rehabilitation.

3. The Sea Turtle Hospital. (2014).

Supplemental videos:

1. TheWildlifeWarriors. (2018). Australia Zoo Wildlife Hospital: Saving Native Animals.
2. SeaWorld® Parks & Entertainment. (2020). SeaWorld Rescues OVER 36,000 Animals and Counting.
3. South Carolina Aquarium. (2011). CNN International Report on the South Carolina Aquarium's Sea Turtle Rescue Program.
4. The Marine Mammal Center (California). (2013). Rescue, Rehabilitation and Release.
5. Palm Beach Zoo & Conservation Society. (2016). Palm Beach Zoo: Rescue. Rehabilitate. Respect.

Virtual guest speaker(s):

- Craig Miller, Curator of Mammals, Jacksonville Zoo & Gardens
- Teresa Calleson, Florida Manatee Recovery Lead, U.S. Fish and Wildlife Service

November 6: Reintroduction of captive bred individuals

Hour 1: Challenges – Sumatran rhino, South China tiger, Indian bustard, giant panda

Hour 2: Successes – American bison, black-footed ferret, California condor, golden lion tamarin, red wolf, Wyoming toad

Assigned readings:

1. Rothfels, N. (2018). (Re)Introducing the Przewalski's Horse. In: Minteer, B.A., Maienschein, J., & Collins, J.P. (eds.). The Ark and Beyond: The Evolution of Zoos and Aquarium Conservation. The University of Chicago Press, Illinois, USA.
2. Earnhardt, J.M. (2010). The Role of Captive populations in Reintroduction Programs. In: Kleiman, D.G., Thompson, K.V., & Baer, C.K. (2010). Wild Mammals in Captivity: Principles & Techniques for Zoo Management. The University of Chicago Press, IL, USA.

Supplemental readings:

1. Rees, P.A. (2011). Chapter 15: In-situ conservation and reintroduction. An Introduction to Zoo Biology & Management. John Wiley & Sons, Ltd, West Sussex, U.K.
2. Kraaijeveld-Smit, F. J., Griffiths, R. A., Moore, R. D., & Beebee, T. J. (2006). Captive breeding and the fitness of reintroduced species: a test of the responses to predators in a threatened amphibian. Journal of Applied Ecology, 43(2), 360-365.
3. McPhee, M. E. (2004). Generations in captivity increases behavioral variance: considerations for captive breeding and reintroduction programs. Biological conservation, 115(1), 71-77.
4. Chuven, J., Newby, J., Monfort, S., Mertes, K., Wacher, T., Al Dhaheri, S., ... & des Tigneuses, R. (2018). Reintroduction of the scimitar–horned oryx in to the Ouadi Rime-Ouadi Achim Game Reserve, Chad. Global Reintroduction Perspectives: 2018. Case studies from around the globe, 165.
5. Dreitz, V. J. (2006). Issues in species recovery: an example based on the Wyoming toad. BioScience, 56(9), 765-771.

6. Meretsky, V. J., Snyder, N. F., Beissinger, S. R., Clendenen, D. A., & Wiley, J. W. (2000). Demography of the California Condor: implications for reestablishment. Conservation Biology, 14(4), 957-967.
7. Kleiman, D. G., Beck, B. B., Dietz, J. M., Dietz, L. A., Ballou, J. D., & Coimbra-Filho, A. F. (1986). Conservation program for the golden lion tamarin: captive research and management, ecological studies, educational strategies, and reintroduction. In Primates (pp. 959-979). Springer, New York, NY.

Supplemental web resources:

1. Phoenix Zoo. (2020). Black-footed ferret.
2. Smithsonian National Zoo. (2020). Oryx Reintroduction.
3. Kansas City Zoo. (2020). Wyoming Toad Captive Breeding, Reintroduction, And Field Survey Program.
4. St. Louis Zoo. (2011). World's First Hellbender Breeding Program.
5. National Geographic. (2013). Marking the 100-year Anniversary of Historic Transfer of Bison from the Bronx Zoo to Wind Cave National Park.

Supplemental videos:

1. OSU Extension Professionals. (2019). Conserving Karner Blue Butterflies at the Toledo Zoo (Mary Gardiner, Ryan Walsh, and the Toledo Zoo).
2. The Cincinnati Zoo & Botanical Garden. (2015). Harapan's Journey - Hope for the Sumatran Rhino - Cincinnati Zoo.
3. Smithsonian's National Zoo. (2017). Earth Optimism: Oryx.
4. Arizona GameAndFish. (2011). Phoenix Zoo Ferret building.
5. TEDx Talks. (2013). How we brought the condor back from the brink | Michael Mace | TEDxDeExtinction.
6. Kansas City Zoo. (2016). A Look At The Wyoming Toad SSP.

Virtual guest speaker:

- Dr. Jared Stabach, Research Ecologist, Conservation Ecology Center, Smithsonian National Zoo
- Dr. Ryan Walsh, Conservation Coordinator, Toledo Zoo

November 11: * NO CLASS MEETING – VETERANS DAY *****

November 13: Working with industries, generating revenue to support existing field programs, and building conservation infrastructure

First 40 minutes: Guiding consumer decision making towards sustainable products (palm oil, sustainable seafood) and working directly with businesses to 'green' operations
Second 40 minutes: Grants and partnerships with organizations and academics in conservation and zoo-based tourism
Third 40 minutes: Conservation NGOs (Bronx Zoo & WCS, Frankfurt Zoo & FZS) and Field Stations (San Diego Zoo Institute for Conservation Research)
Assigned readings:

1. Cerezo, A. & Kapsar, K.E. (2018). Zoo Conservation Disembarks: Stepping off the Ark and into Global Sustainable Development. In: Minteer, B.A., Maienschein, J., & Collins, J.P. (eds.). The Ark and Beyond: The Evolution of Zoos and Aquarium Conservation. The University of Chicago Press, Illinois, USA.

2. Fa, J. E., Gusset, M., Flesness, N., & Conde, D. A. (2014). Zoos have yet to unveil their full conservation potential. Animal Conservation, 17(2), 97-100.
3. Zimmermann, A. & Wilkinson, R. (2007). The conservation mission in the wild: zoos as conservation NGOs? In: Zimmermann, A., Hatchwell, M., Dickie, L, & West, C. (eds.). Zoos in the 21st Century: Catalysts for Conservation? Cambridge University Press, UK.

Supplemental readings:

1. Christie, S. (2007). Zoo-based fundraising for in situ wildlife conservation. In: Zimmermann, A., Hatchwell, M., Dickie, L, & West, C. (eds.). Zoos in the 21st Century: Catalysts for Conservation? Cambridge University Press, UK.
2. Zimmermann, A. (2010). The Role of Zoos in Contributing to In Situ Conservation. In: Kleiman, D.G., Thompson, K.V., & Baer, C.K. (2010). Wild Mammals in Captivity: Principles & Techniques for Zoo Management. The University of Chicago Press, IL, USA.
3. Swaisgood, R. R. (2009). Zoos dream of becoming conservation NGOs. Conservation Biology, 23(5), 1338-1340.
4. Sinclair, A. R. E., Mduma, S. A., Hopcraft, J. G. C., Fryxell, J. M., Hilborn, R. A. Y., & Thirgood, S. (2007). Long-term ecosystem dynamics in the Serengeti: lessons for conservation. Conservation Biology, 21(3), 580-590.
5. Sanderson, E. W., Redford, K. H., Weber, B., Aune, K., Baldes, D., Berger, J., ... & Fearn, E. V. A. (2008). The ecological future of the North American bison: conceiving long-term, large-scale conservation of wildlife. Conservation biology, 22(2), 252-266.
6. Roheim, C. A. (2009). An evaluation of sustainable seafood guides: implications for environmental groups and the seafood industry. Marine Resource Economics, 24(3), 301-310.
7. Gusset, M., & Dick, G. (2011). The global reach of zoos and aquariums in visitor numbers and conservation expenditures. Zoo Biology, 30(5), 566-569.
8. San Diego Zoo Global. (2020). Top fundraising priorities. https://zoo.sandiegozoo.org/support-us/top-fundraising-priorities.
9. Sequoia Park Zoo. (2020). Conservation Fundraising. https://www.sequoiaparkzoo.net/conservation/conservation-fundraising/.
10. Zoo Tampa at Lowry Park. (2020). Events at the zoo. https://zootampa.org/events/.

Supplemental web resources:

1. Monterrey Bay Aquarium. (2020). Seafood Watch.
2. Cheyenne Mountain Zoo. (2020). Orangutans & Palm Oil.
3. South Carolina Aquarium. (2020). Good Catch.
4. Frankfurt Zoological Society. (2020). Conservation Work.
5. Wildlife Conservation Society. (2020). Our work.
6. American Association of Zoo Keepers. (2020). Bowling for Rhinos.
7. Association of Zoos & Aquariums. (2020). Conservation Funding.
8. Jacksonville Zoo & Gardens. (2019). Toast to Conservation.
9. Disney Conservation. (2020). Disney Conservation Fund.
10. Zoo Miami. (2020). Conservation Grants.

Supplemental videos:

1. Seafood Watch. (2019). Why rely on the Monterey Bay Aquarium Seafood Watch program?
2. Columbus Zoo and Aquarium. (2019). Sustainable Palm Oil — How to Save the Planet at Home.
3. San Diego Zoo. (2014). Saving Hawaiian Birds From Extinction.
4. Wildlife Conservation Society. (2020). WCS Celebrates 125 Years.
5. Zoologische Gesellschaft Frankfurt von 1858 e.V. (2017). Serengeti Conservation Project - Frankfurt Zoological Society.
6. DisneyConservation. (2016). Disney Conservation Fund: Reverse the Decline, Increase the Time (Full Video).
7. Phoenix Zoo. (2014). Collaboration in Conservation at the Phoenix Zoo.
8. Houston Zoo. (2011). Houston Zoo: Protecting Animals in the Wild.
9. American Association of Zoo Keepers. (2014). Bowling for Rhinos.
10. News4JAX. (2018). Toast to Conservation.

Virtual guest speaker(s):

- Shelley Dearhart, Senior Fisheries Scientist, Monterey Bay Aquarium
- Nick Espinosa, Vice President of Development, Houston Zoo

November 18: Creating and restoring habitat, preserving zoo grounds, and acquiring land
Creating an oasis for wildlife (Houston Zoo pollinator pathways, Zoo Atlanta Project Pollinator), zoos in rural areas with large properties (North Carolina Zoo Wild Land Preservation), and land acquisition by zoos (Disney Wilderness Preserve, Australia Zoo Conservation Properties)
Assigned readings:

1. Kendall, C.J., & Bergl, R.A. (2019). Evolving Approaches to Zoo-Based Conservation. Scientific Foundations of Zoos and Aquariums Their Role in Conservation and Research. p. 45-63.

Supplemental readings:

1. North Carolina Zoo. (2020). North Carolina Zoo Conservation & Research.
2. Grazian, D. (2015). Chapter 1: Where the Wild Things Aren't: Exhibiting Nature in American Zoos. American Zoo: A Sociological Safari. Princeton University Press, New Jersey, USA.
3. Stanisic, J. (2010). Biodiversity vs Bauxite: Conservation at a Snail's Pace. Wildlife Australia, 47(2), 32.
4. Lyon, B. J., Couper, P. J., Amey, A., Roberts, L. J., & Covacevich, J. A. (2010). Frogs and Reptiles of the Steve Irwin Wildlife Reserve, Cape York. Queensland Naturalist, 48(1/3), 13.
5. Hall, D. M., Camilo, G. R., Tonietto, R. K., Ollerton, J., Ahrné, K., Arduser, M., ... & Goulson, D. (2017). The city as a refuge for insect pollinators. Conservation Biology, 31(1), 24-29.
6. Provencher, L., Herring, B. J., Gordon, D. R., Rodgers, H. L., Galley, K. E., Tanner, G. W., Hardesty, J.L., & Brennan, L. A. (2001). Effects of hardwood reduction techniques on longleaf pine sandhill vegetation in northwest Florida. Restoration Ecology, 9(1), 13-27.

Supplemental web resources:

1. Australia Zoo. (2020). Conservation Properties. https://www.australiazoo.com.au/support-wildlife/properties/.
2. The Nature Conservancy. (2020). Disney Wilderness Preserve. https://www.nature.org/en-us/get-involved/how-to-help/places-we-protect/the-disney-wilderness-preserve/.
3. North Carolina Zoo. (2018). Wild Land Preservation in North Carolina. https://www.nczoo.org/conservation/regional-conservation/wild-land-preservation-north-carolina.
4. Denver Zoo. n.d. Habitat Milestone in the Mile High City. https://www.nwf.org/Garden-for-Wildlife/Create/Real-Wildlife-Habitat-Gardens/Denver-Zoo.
5. Woodland Park Zoo. (2020). Pollinator Gardens. https://www.zoo.org/butterflygarden.

Supplemental videos:

1. Australian Geographic. (2014). Terri Irwin talks about the Steve Irwin Wildlife Reserve
2. Florida Hikes! (2017). Disney Wilderness Preserve.
3. Balance For Earth. (2017). Restore Our Shores (Brevard Zoo Oyster Reef Restoration).
4. Cincinnati Zoo & Botannical Garden. (2018). Honey Bee Hive Removed from Local Home and Moved to Cincinnati Zoo.
5. Dallas Zoo. (2017). Dallas Zoo Works Hard to Restore Habitat for Endangered Birds.

Virtual guest speaker:

- Dr. Rich Bergl, Director of Conservation, Education & Science, North Carolina Zoo
- Daniel Cole, The Nature Conservancy, Disney Wilderness Preserve

November 20: Long-term applied field research

Hour 1: The academic route – universities, post docs, and formal partnerships
Hour 2: Grassroots efforts – community-based conservation and participatory research
Assigned readings:

1. Knapp, C.R. (2018). Beyond the Walls: Applied Field Research for the Twenty-first-Century Public Aquarium and Zoo. In: Minteer, B.A., Maienschein, J., & Collins, J.P. (eds.). The Ark and Beyond: The Evolution of Zoos and Aquarium Conservation. The University of Chicago Press, Illinois, USA.
2. Loh, T.L., Larson, E.R., David, S.R., de Souza, L.S., Gerickle, R., Gryzbek, M., Kough, A.S., Willink, P.W., Knapp, C.R. (2018). Quantifying the contribution of zoos and aquariums to peer-reviewed scientific research. FACETS. 3: 287-299.

Supplemental readings:

1. Fernandez, E. J., & Timberlake, W. (2008). Mutual benefits of research collaborations between zoos and academic institutions. Zoo Biology: Published in affiliation with the American Zoo and Aquarium Association, 27(6), 470-487.
2. Knapp, C. R. (2005). Working to save the Andros iguana. Iguana, 12, 8-13.
3. Hallett, M. T., Kinahan, A. A., McGregor, R., Baggallay, T., Babb, T., Barnabas, H., Wilson, A., Li, F.M., Boone, W.W., & Bankovich, B.A. (2019). Impact of low-intensity hunting on game species in and around the Kanuku Mountains Protected

Area, Guyana. Frontiers in Ecology and Evolution, 7, 412. https://www.frontiersin.org/articles/10.3389/fevo.2019.00412/full
4. Bergl, R.A. & Vigiland, L. (2007). Genetic analysis reveals population structure and recent migration within the highly fragmented range of the Cross River gorilla (*Gorilla gorilla diehli*). Molecular Ecology. 16: 501-516.
5. Niemiller, M. L., Graening, G. O., Fenolio, D. B., Godwin, J. C., Cooley, J. R., Pearson, W. D., ... & Near, T. J. (2013). Doomed before they are described? The need for conservation assessments of cryptic species complexes using an amblyopsid cavefish (Amblyopsidae: Typhlichthys) as a case study. Biodiversity and Conservation, 22(8), 1799-1820.
6. Mendelson J.R., Lips K.R., Gagliardo R.W., Rabb G.B., Collins J.P., Diffendorfer J.E., Daszak P., Ibáñez D.R., Zippel K.C., Lawson D.P., Wright K.M., Stuart S.N., Gascon C., da Silva H.R., Burrowes P.A., Joglar R.L., La Marca E., Lötters S., du Preez L.H., Weldon C., Hyatt A., Rodriguez-Mahecha J.V., Hunt S., Robertson H., Lock B., Raxworthy C.J., Frost D.R., Lacy R.C., Alford R.A., Campbell J.A., Parra-Olea G., Bolaños F., Domingo J.J., Halliday T., Murphy J.B., Wake M.H., Coloma L.A., Kuzmin S.L., Price M.S., Howell K.M., Lau M., Pethiyagoda R., Boone M., Lannoo M.J., Blaustein A.R., Dobson A., Griffiths R.A., Crump M.L., Wake D.B., Brodie E.D. (2006). Confronting amphibian declines and extinctions.
7. Stabach, J.A., Dabek, L., Jensen, R., & Wang, Y. Q. (2009). Discrimination of dominant forest types for Matschie's tree kangaroo conservation in Papua New Guinea using high-resolution remote sensing data. International Journal of Remote Sensing, 30(2), 405-422.

Supplemental web resources:

1. Jacksonville Zoo & Gardens. (2020). Conservation – Rupununi Wildlife Research Unit. https://www.jacksonvillezoo.org/rupununi.
2. Shedd Aquarium. (2020). Conservation Research. https://www.sheddaquarium.org/care-and-conservation/shedd-research.
3. San Diego Zoo. (2020). Institute for Conservation Research. https://institute.sandiegozoo.org/.
4. Smithsonian. (2020). National Zoo & Conservation Biology Institute. https://nationalzoo.si.edu/conservation.
5. San Antonio Zoo. (2020). Conservation Efforts & Research. https://sazoo.org/zoo-conservation-efforts/.

Supplementary videos:

1. Wildlife Conservation Network. (2017). WCN Fall Expo 2017 - Okapi Conservation Project- John Lukas (Jacksonville Zoo & Gardens). =
2. Shedd Aquarium. (2013). Rock Iguana Research and Conservation. =
3. WoodlandParkZoo. (2009). Tree Kangaroo Conservation Program, Papua New Guinea. =
4. Monterey Bay Aquarium Research Institute (MBARI). (2019). Tagging along with sharks to the White Shark Café.
5. Smithsonian's National Zoo. (2018). Restoring the North American Prairie.

Virtual guest speaker:

- Dr. Chuck Knapp, Vice President of Conservation Research, John G. Shedd Aquarium

November 24-28: * NO CLASS – THANKSGIVING BREAK *****

December 2: FINAL thoughts & FINAL presentations
Are zoos accomplishing their missions? Are they meeting all three tiers of their triple bottom line?
Assigned readings:

1. Maynard, L., Jacobson, S. K., Monroe, M. C., & Savage, A. (2019). Mission impossible or mission accomplished: Do zoo organizational missions influence conservation practices?. Zoo Biology.
2. Maynard, L., McCarty, C., Jacobson, S. K., & Monroe, M. C. Conservation networks: are zoos and aquariums collaborating or competing through partnerships? Environmental Conservation, 1-8.
3. Wharton, J., Khalil, K., Fyfe, C., & Young, A. (2019). Effective practices for fostering empathy towards marine life. In Exemplary practices in marine science education (pp. 157-168). Springer, Cham.

Virtual guest speaker(s):

- Dr. Lily Maynard, Conservation Program Manager, Disney's Animal Kingdom;
- Dr. Kathayoon Khalil, Conservation Impact Manager, Oregon Zoo

Grading Policy:
All assignments are to be typed, not handwritten, and should be submitted in accordance with the assignment description. Assignments are due at 1:50 pm on the due date unless otherwise specified. Late submissions of assignments (can) result in a 10% reduction in the assignment grade per day and may not be accepted after five days.

There are a total of 500 points available between assignments, attendance, and exams. The number of points available per assignment and exam is described below. Extra credit is available throughout the semester but cannot be submitted past due based on need at the end of the semester.

Percent	Semester points	Grade	Grade Points
92.5 - 100.0	462-500	A	4.00
89.5 - 92.4	448-461	A-	3.67
87.5 – 89.4	438-447	B+	3.33
82.5 – 87.4	413-437	B	3.00
79.5 – 82.4	398-412	B-	2.67
77.5 - 79.4	388-397	C+	2.33
71.5 – 77.4	358-387	C	2.00
69.5 - 71.4	348-357	C-	1.67
67.5 - 69.4	338-347	D+	1.33
62.5 – 67.4	313-337	D	1.00
60.0 - 62.4	300-312	D-	0.67

0 - 59.9	≤299	E	0.00

More information on UF grading policy may be found at:
https://catalog.ufl.edu/UGRD/academic-regulations/grades-grading-policies/

Assignments:

Semester-long project

Assignments 2, 3, 5, 6, 7, 8, and 10 are all part of a semester-long project in which you will work in groups of two or on your own to create a zoo using Planet Zoo© simulation software. This highly detailed simulation software will allow you to experience the many aspects of creating and managing a zoo that provides a high-level of care for animals, ensures the safety of its staff, creates an enriching and educational experience for your guests, and impacts conservation in the field. Each assignment is designed to document your progress and provide you with an opportunity to reflect on how your decision-making has affected your animals, staff, guests, and business. Your final presentation will simply be a review of each of these individual steps, along with a virtual tour of your zoo. You will need to construct, improve, expand, and grow your zoo outside of class time and the simulation interface will allow you to be as detailed as you like in your designs.

***Assignment 1:* Video reflection on your opinion of zoos (*10 points – 2% of final grade*)**

Due Date: Prior to the start of class on August 26th

Description: Produce a video reflection on your opinion of zoos. Be BRUTALLY honest. Outline what you like about zoos and what you don't like about them. Highlight some previous experiences at zoos, both positive and negative. You will not be graded on what you say about zoos, but rather whether or not you completed the assignment on time with a thoughtful reflection.

Grading rubric: Thoughtful reflections on video with copious connections to themes, content, and examples from class = 15; Somewhat thoughtful reflections with some connections to themes and examples = 12; Limited reflection with few connections = 10; Little reflection, no connections to course content = <9; Assignment incomplete = 0

Submission: Upload to e-learning website prior to class.

***Assignment 2*: Strategy & budget (*25 points – 5% of final grade*)**

Due Date: September 11th

Description: Ahead of visualizing your exhibit using Planet Zoo, begin to think about and outline the strategic important strategic elements. In a single PowerPoint slide outline your: (1) zoo a name, (2) mission, (3) vision, and (4) (up to five) strategic areas of focus. Use Houston Zoo's strategic plan as your guide (available in the links to web resources folder in Canvas). In a second PowerPoint slide, present a (5) pie chart of budget priority areas. Use the pie charts from class as a reference. Present the name, mission, vision, strategic focus, and budget priorities for your zoo in a brief 2-minute (MAX) video blog. Upload the video (no need to upload the slides for now) to Canvas. Reduce pertinent information on how and why you made zoo design and collection decisions into a single PowerPoint slide.

Grading rubric: Single PowerPoint slide with information effectively reduced video reflection that stays under time with reflections on, and connections to, content and examples from class =

>25; single PowerPoint slide with too much information, video stays under time but little connection to class material = 20; single PowerPoint slide without key details or unorganized, video without key details or too long or rambling = 15; very poorly organized, not well thought out slide / video, or obviously slapped together at the last minute = <15
Submission: Upload to e-learning website prior to class.

Assignment 3:* Staffing, & zoo budget *(25 points - 5% of final grade)
Due Date: September 25th
Description: Design an organizational chart for your organization. Decide on number of staff in each area and how your expenditures will keep you under your total budget (provided). Reduce pertinent information on how and why you made organizational, staffing, and budget decisions into a three PowerPoint slides (one for org chart, one for staffing, and one for budget). Use Zoom to produce a 3-minute (MAX) video outlining your progress to date and reflecting on the decisions that you have made thus far.
Grading rubric: Three PowerPoint slides with information effectively reduced, video reflection that stays under time with reflections on, and connections to, content and examples from class = 25; three PowerPoint slides with too much/too little information, video way under/ goes over time but little connection to class material = 20; three PowerPoint slides without key details or unorganized, video without key details or too long or rambling = 15; very poorly organized, not well thought out slide / video, or obviously slapped together at the last minute = <15
Submission: Upload to e-learning website prior to class.

Extra credit:* Deep dive on the history of zoos *(5 points – 1% of final grade)
Due Date: October 2rd
Description: Review all supplemental resources provided on the history of zoos. Produce a short video reflection (<5 minutes) reflecting on anything new that you learned and how this information may effect your opinion of zoos.
Grading rubric: Video reflection that stays under time with reflections on, and connections to, content and examples from class = 5; video stays under time but little connection to class material = 3; video without key details or too long or rambling = 1
Submission: Upload to e-learning website prior to class.

Assignment 4:* Exam I *(50 points - 10% of final grade)
Due Date: Available October 3rd – 6th
Description: Mid-term exam covering course materials up to this point in the semester.
Grading rubric: Thoughtful reflections to essay questions with copious connections to themes, content, and examples from class = >45, somewhat thoughtful reflections with some connections to themes and examples = 40, limited reflection with few connections = 30, little reflection, no connections to course content = <20
Submission: Exam available to take and submit online via the course page on canvas.

Extra credit:* Deep dive into a zoo career *(5 points - 1% of final grade)
Due Date: October 9th
Description: Choose a zoo career that interests you and research the key prerequisites, responsibilities, and benefits online. There are plenty of videos on YouTube and web resources

that highlight different zoo careers. Write one paragraph that outlines the key aspects identified above and includes a brief reflection on whether or not this meets your previous expectations. If you cannot find the exact career that matches your interests, choose the closest career, highlight aspects, and reflect on why you think there is not an exact match.
Grading rubric: Career sufficiently researched with thoughtful reflection = 5, career somewhat researched with little reflection = 3, little information on either front = 1
Submission: Upload to e-learning website prior to class

Assignment 5:* Exhibit design, enrichment & training protocols *(25 points - 5% of final grade)
Due Date: October 16th
Description: Design at least 2-3 key exhibits that feature key species from your collection plan. Decide on enrichment and training protocols for each species. Reduce pertinent information on how and why you made zoo design and collection decisions into two or three PowerPoint slides (one for each exhibit). Use Zoom to produce a 2-3 minute (MAX) video outlining your progress to date and reflect on the decisions that you have made thus far.
Grading rubric: Two or three PowerPoint slides with information effectively reduced video reflection that stays under time with reflections on, and connections to, content and examples from class = >25; two or three PowerPoint slides with too little or much information, video stays under time but little connection to class material = 20; two or three PowerPoint slides without key details or unorganized, video without key details or too long or rambling = 15; very poorly organized, not well thought out slide / video, or obviously slapped together at the last minute = <15
Submission: Upload to e-learning website prior to class.

Assignment 6:* Breeding plan & expected contribution to SSPs *(25 points - 5% of final grade)
Due Date: October 30th
Description: Establish a breeding plan for key species with connections to regional, national, and international SSPs. Reduce pertinent information on how and why you made decisions and how you will connect to SSPs into a single PowerPoint slide for each species. Highlight 2-3 species max. Use Zoom to produce a 2-3-minute (one minute for each species MAX) video outlining your progress to date and reflecting on the decisions that you have made thus far.
Grading rubric: Two or three PowerPoint slides with information effectively reduced video reflection that stays under time with reflections on, and connections to, content and examples from class = >25; two or three PowerPoint slides with too little or much information, video stays under time but little connection to class material = 20; two or three PowerPoint slides without key details or unorganized, video without key details or too long or rambling = 15; very poorly organized, not well thought out slide / video, or obviously slapped together at the last minute = <15
Submission: Upload to e-learning website prior to class.

Assignment 7:* Education plan *(25 points - 5% of final grade)
Due Date: November 13th
Description: Establish an education plan for your facility which considers on-exhibit, classroom/school-based, animal-based, long-term, and media opportunities. Reduce pertinent

information on how and why you made decisions and what opportunities your zoo will offer into a single PowerPoint slide for each type of offering (on-exhibit, classroom, animal-based, longterm, and media). Use Zoom to produce a 5-minute (one minute for type of program MAX) video outlining your progress to date and reflecting on the decisions that you have made thus far.
Grading rubric: Five PowerPoint slides with information effectively reduced, video reflection that stays under time with reflections on, and connections to, content and examples from class = 25; five PowerPoint slides with too much information, video stays under time but little connection to class material = 20; five PowerPoint slides without key details or unorganized, video without key details or too long or rambling = 15; very poorly organized, not well thought out slides / video, or obviously slapped together at the last minute = <15
Submission: Upload to e-learning website prior to class.

Extra credit:* Zoo career video *(5 points - 1% of final grade)
Due Date: November 20th
Description: Produce a short video reflection (2-3 minutes) on your interest in zoo and aquarium careers, what you see as the potential best options that meet your interests, and whether or not what you have learned in this course so far has changed your mind about zoo careers.
Grading rubric: Video sufficiently highlights issue, making connections to species in your zoo = 5, insufficient detail on issue or unclear connections to species in your zoo = 3, little information on either front = 1
Submission: Upload to e-learning website prior to class.

Assignment 8:* Conservation plan *(25 points - 5% of final grade)
Due Date: December 2nd
Description: Establish a conservation plan for your facility which considers species, region, or issue on which you will focus, connections to species at your zoo, and strategy for engagement (direct, indirect). Reduce pertinent information on how and why you made decisions and what conservation activities your zoo will engage in into two PowerPoint slides – one that identified focal species, region, or topic and connections to your zoo and a second that outlines your strategy for engagement. Use Zoom to produce a 3-minute (one minute to identify species/region/issue and two minutes to outline strategy) video outlining your progress to date and reflecting on the decisions that you have made thus far.
Grading rubric: Two PowerPoint slides with information effectively reduced video reflection that stays under time with reflections on, and connections to, content and examples from class = >25; two PowerPoint slides with too little or too much information, video stays under time but little connection to class material = 20; single PowerPoint slide without key details or unorganized, video without key details or too long or rambling = 15; very poorly organized, not well thought out slide / video, or obviously slapped together at the last minute = <15
Submission: Upload to e-learning website prior to class.

Extra Credit:* Deep dive into any one issue *(5 points; 1% of final grade)
Due Date: Anytime throughout the semester prior to December 4th
Description: Choose a single topic and review all supplemental resources provided. Write a brief reflection summarizing each resource, highlighting one new thing that you learned for each.
Grading rubric: Three to four sentence reflection for each reading/resource/video under a given

topic = 5, limited reflection or skipped readings/resources/videos = 3, little reflection or only chose a few additional readings/resources/videos = 1
Submission: Upload to e-learning website prior to class.

Extra credit:* Social media post supporting zoo conservation initiative *(5 points - 1% of final grade)
Due Date: Anytime throughout the semester prior to December 4th
Description: Create a post for the social media platform of your choice (Instagram, Facebook, Twitter, TikTok, etc.) that highlights a conservation initiative currently being undertaken by an AZA-accredited zoo or aquarium. Post at the beginning of final exam week and monitor how many likes, shares, and views you get over the course of the week. Submit a screen shot of your post, along with the key metrics, and a one paragraph reflection on why you think people responded to your post in this way and how you could have improved if you were to do it again.
Grading rubric: Screenshot of post with attractive visual, effective text, key metrics reported, and thoughtful paragraph reflecting on how people responded and how you could improve = 5, Screenshot of post with somewhat effective visual and text, key metrics, and paragraph lacking reflection = 3, Screenshot of post = 1
Submission: Upload to e-learning at the end of finals week.

Assignment 9:* Rate an exhibit via virtual zoo tour *(25 points - 5% of final grade)
Due Date: December 5th
Description: Observe the exhibits during your field trip and rate various aspects of the exhibit based on what you see. Choose two specific exhibits out of those available (can be single or multi species exhibit) and evaluate based on exhibit design, veterinary care/feeding, guest viewing, educational signage, and guest/staff safety. An evaluation template will be provided to you, but you will be graded heavily on the reasoning behind your scoring.
Grading rubric: Detailed insights provided for scoring under each theme = >45, scores and limited insights on reasoning = 40, scores and almost no background on reasoning = 30, scores only = <20
Submission: Upload to e-learning website at any point in the semester prior to December 8th.

Assignment 10:* Final exam *(50 points - 10% of final grade)
Due Date: Available online December 5th – 8th
Description: Comprehensive final exam covering course materials that encompass the entire semester.
Grading rubric: Thoughtful reflections to essay questions with copious connections to themes, content, and examples from class = >45, somewhat thoughtful reflections with some connections to themes and examples = 40, limited reflection with few connections = 30, little reflection, no connections to course content = <20
Submission: Upload to e-learning website prior to class.

Assignment 11:* Final Project Presentation *(100 points - 20% of final grade)
Due Date: before December 9th
Description: Present your final zoo to the class. Review the PowerPoint slides and the reflections that you have shared in videos throughout the semester and condense your best work into a

single 5-minute presentation that hits all the highlights while taking your classmates on a virtual tour of your zoo. Presentations will be done in class if possible, via video if necessary.
Grading rubric: Five PowerPoint slides with information effectively reduced, virtual tour that stays under time with key reflections on, and connections to, content and examples from class = >54; five PowerPoint slides with too little or too much information, tour stays under time but little connection to class material = 40; five PowerPoint slides without key details or unorganized, tour without key details or too long or rambling = 30; very poorly organized, not well thought out slides / tour, or obviously slapped together at the last minute = <20
Submission: Upload to e-learning website prior to class.

Assignment 12: **Video reflection on your opinion of zoos (*15 points – 3% of final grade*)**
Due Date: December 10th
Description: Produce a video reflection on your opinion of zoos. Again, be BRUTALLY honest. However, this time review the video that you made at the beginning of the semester and also reflect on how your opinion of zoos may have changed. Identify specific things that you learned that changed your mind one way or the other and/or activities, topics, or speakers that were particularly impactful in forming your current stance on zoos. Reflect on how this class may or may not have changed how you will look at zoos during future visits. Once again, you will not be graded on what you say about zoos, but rather whether or not you completed the assignment on time with a thoughtful reflection.
Grading rubric: Survey complete, thoughtful reflections on video with copious connections to themes, content, and examples from class = 50; survey complete, somewhat thoughtful reflections with some connections to themes and examples = 40; survey complete, limited reflection with few connections = 30; survey complete, little reflection, no connections to course content = <20; survey incomplete = 0
Submission: Upload to e-learning website prior to class.

Assignment 13: **Attendance/Participation *(100 points - 20% of final grade)***
Due Date: Throughout semester.
Description: There are 27 class meetings over 15 weeks in the Fall 2025 semester. Of those 27 class meetings, 26 of them have ATLEAST one associated interview with a virtual guest speaker. You are expected to watch all virtual guest speaker interviews and contribute a brief weekly reflection to the associated discussion based on what you saw/heard. Each discussion post will be worth 5 points (75 points total for the semester). The remaining 25 points will be awarded based on your overall attendance and participation during in-class activities, discussions, etc.

Grading rubric:

- Online participation: Thoughtful reflection = 5 points, weak reflection = 2 points, do not submit answer to online question = 0 points (78 possible points total)
- In-class participation = Contribute to class discussion, activities or lectures every class meeting = 25 points, contribute in ¾ of class meetings = 18.75 points, contribute in ½ of class meetings = 12.5 points, contribute in ¼ of class meetings 6.25 points, never contribute = 0 points (25 possible points total)

Submission: Upload responses to weekly questions to e-learning website prior to class, in-class participation scored per class period and accumulated across the semester.

Attendance and Class Demeanor Policy:

There are 27 possible class meetings during the 15-week 2025 fall semester. I expect that registered students attend class meetings in-person (unless accommodation is required otherwise), arrive on time, and fully participate in class discussions, activities, and lectures. This means that cell phones should be put away during class meetings and laptops should be used for notetaking or in-class research related to class activities. In-class participation will be scored at the end of the semester, based on a general assessment of each student's participation in class activities and discussions (25 total points for the semester). Virtual participation will be scored based on discussions that will be made available weekly prior to the start of each Tuesday class meeting (5 points each) related to that week's virtual guest speakers (75 points total). This assignment will need to be submitted prior to the start of class the following Tuesday to ensure that students are prepared to discuss guest speakers.

Excused absences must be consistent with university policies in the Graduate Catalog and require appropriate documentation. Additional information can be found here: https://catalog.ufl.edu/UGRD/academic-regulations/attendance-policies/

Students Requiring Accommodations:

Students with disabilities who experience learning barriers and would like to request academic accommodations should connect with the Disability Resource Center (https://disability.ufl.edu/get-started/). It is important for students to share their accommodation letter with their instructor and discuss their access needs as early as possible in the semester.

Course Evaluation:

Students are expected to provide feedback on the quality of instruction in this course by completing online evaluations. Students can complete evaluations in three ways:

1. The email they receive from GatorEvals;
2. Their Canvas course menu under GatorEvals;
3. The central portal at https://my-ufl.bluera.com.

Guidance on how to provide constructive feedback is available at https://gatorevals.aa.ufl.edu/students/. Students will be notified when the evaluation period opens. Summaries of course evaluation results are available to students at https://gatorevals.aa.ufl.edu/public-results/.

University Honesty Policy regarding cheating, plagiarism, etc.:

UF students are bound by The Honor Pledge which states "We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: "On my honor, I have neither given nor received unauthorized aid in doing this assignment." The Conduct Code specifies a number of behaviors that are in violation of this code and the possible sanctions. See

the UF Conduct Code website for more information. If you have any questions or concerns, please consult with the instructor or TAs in this class.

Software Use:

All faculty, staff, and students at the University are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against university policies and rules, disciplinary action will be taken as appropriate. We, the members of the University of Florida community, pledge to uphold ourselves and our peers to the highest standards of honesty and integrity.

Student Privacy:

There are federal laws protecting your privacy with regards to grades earned in courses and on individual assignments. For more information, please see:
http://registrar.ufl.edu/catalog0910/policies/regulationferpa.html

In-Class Recording:

Students are allowed to record video or audio of class lectures. However, the purposes for which these recordings may be used are strictly controlled. The only allowable purposes are (1) for personal education use, (2) in connection with a complaint to the university, or (3) as evidence in, or in preparation for, a criminal or civil proceeding. All other purposes are prohibited. Specifically, students may not publish recorded lectures without the written consent of the instructor. A "class lecture" is an educational presentation intended to inform or teach enrolled students about a particular subject, including any instructor-led discussions that form part of the presentation, and deliver by an instructor hired or appointed by the University, or by a guest instructor, as part of a University of Florida course.

A class lecture does not include lab sessions, student presentations, clinical presentation such as patient history, academic exercises involving solely student participation, assessments (quizzes, tests, exams), field trips, private conversations between students in the class or between a student and the faculty or guest lecturer during a class session.

Publication without permission of the instructor is prohibited. To "publish" means to share, transmit, circulate, distribute, or provide access to a recording, regardless, of format or medium, to another person (or persons), including but not limited to another student within the same class section. Additionally, a recording, or transcript of a recording, is considered published if it is posted on or uploaded to, in whole or in part, any media platform, including but not limited to social media, book, magazine, newspaper, leaflet, or third-party note/tutoring services. A student who publishes a recording without written consent may be subject to a civil cause of action instituted by a person injured by the publication and/or discipline under UF Regulation 4.040 Student Honor Code and Student Conduct Code.

Campus Resources:

Health and Wellness

UF Whole Gator Resources:
Visit https://one.uf.edu/whole-gator/discover for resources that are designed to help you thrive physically, mentally, and emotionally at UF.

U Matter, We Care:
If you or a friend is in distress, please reach out to the Campus Assistance & Resources for Empowerment (CARE) at https://umatter.ufl.edu/, umatter@ufl.edu, or 352 392-1575 so that a team member can reach out to the student.

Counseling and Wellness Center:
Contact the Counseling and Wellness Center (http://www.counseling.ufl.edu/cwc) at (352) 392-1575; and the University Police Department: (352) 392-1111 or 9-1-1 for emergencies.

Sexual Assault Recovery Services (SARS)
Contact the Student Health Care Center at (352) 392-1161.

University Police Department
Contact the University of Florida Police Department at *(352)* 392-1111 (or 9-1-1 for emergencies), or http://www.police.ufl.edu/.

Academic Resources

- E-learning technical support: Contact the UF Computing Help Desk at 352-392-4357 or via e-mail at helpdesk@ufl.edu.
- Career Connections Center: Reitz Union Suite 1300, 352-392-1601. Career assistance and counseling services.
- Library Support: Various ways to receive assistance with respect to using the libraries or finding resources. Call 866-281-6309 or email ask@ufl.libanswers.com for more information.
- Academic Resources: 1317 Turlington Hall, Call 352-392-2010, or to make a private appointment: 352- 392-6420. Email contact: teaching-center@ufl.edu. General study skills and tutoring.
- Writing Studio: Daytime (9:30am-3:30pm): 2215 Turlington Hall, 352-846-1138 | Evening (5:00pm-7:00pm): 1545 W University Avenue (Library West, Rm. 339). Help brainstorming, formatting, and writing papers.
- Academic Complaints: Office of the Ombuds; Visit the Complaint Portal webpage for more information.
- Enrollment Management Complaints (Registrar, Financial Aid, Admissions): View the Student Complaint Procedure webpage for more information.
- UF Student Success Initiative: Visit https://studentsuccess.ufl.edu/ for resources that support your success as a UF student.