



UNIVERSITY OF CALGARY
FACULTY OF ARTS
SCHOOL OF CREATIVE AND PERFORMING ARTS
DNCE 363 Dance Science
Winter 2022

Instructor Office Email Office Hours	Sarah Kenny PhD KNB 246; CHD 529 kennys@ucalgary.ca By appointment
Days/Times Location of class	Wednesdays and Fridays 8:00 – 9:50am CHE 011 and CHE 012
Learning resources	<p>DNCE 363 Course Blog https://library.ucalgary.ca/guides/dance/courseblog/dnce-363-dance-science Marc Stoeckle, Dance Librarian mstoeckle@ucalgary.ca</p> <p>Required Texts (available for purchase at Campus Bookstore)</p> <ol style="list-style-type: none"> 1. Simmel, L. (2014). Dance medicine in practice. London: Routledge. 2. Clippinger, K. (2015). Dance anatomy and kinesiology (2nd ed.). Champaign: Human Kinetics. <p>Recommended Texts</p> <ol style="list-style-type: none"> 1. Bean, A. (2014). Food for fitness: How to eat for maximum performance (4th ed). London: Bloomsbury Sport. 2. Clippinger, K. (2015). Dance anatomy and kinesiology (2nd ed.). Champaign: Human Kinetics. 3. Calais-Germain, B. (1993). Anatomy of movement. Seattle: Eastland Press. 4. Farhi, D. (1996). The breathing book. New York: Henry Holt. 5. Grossman, G. (2015). Dance science: Anatomy, movement analysis, conditioning. Hightstown: Princeton Book Company. 6. Haas, J. (2010). Dance anatomy. Champaign: Human Kinetics. 7. Howse, J., & McCormack, M. (2009). Anatomy, dance technique and injury prevention (4th ed.). London: Bloomsbury Publishing PLC. 8. Koutedakis, Y., & Sharp, N. C. C. (1999). The fit and healthy dancer. Chichester: Wiley. 9. Krasnow, D., & Wilmerding, M. V. (2015). Motor learning and control for dancers. Champaign: Human Kinetics. 10. Laws, K., & Sugano, A. (2008). Physics and the art of dance: Understanding movement (2nd ed.). New York: Oxford University Press, Inc. 11. Mastin, Z. (2009). Nutrition for the dancer. Alton: Dance Books. 12. Olsen, A. (1998). Body stories: A guide to experiential anatomy. New York: Station Hill Openings. 13. Quin, E., Rafferty, S., & Tomlinson, C. (2015). Safe dance practice. Champaign: Human Kinetics. 14. Solomon, R., Solomon, J., & Micheli, L. J. (Eds.) (2017). Prevention of injuries in the young dancer. Cham: Springer.

	<p>15. Taylor, J., & Estanol, E. (2015). Dance psychology for artistic and performance excellence (2nd ed). Champaign: Human Kinetics.</p> <p>16. Thomas, J., Nelson, J., Silverman, S. (2015). Research methods in physical activity (7th ed). Champaign: Human Kinetics.</p> <p>17. Wilmerding, M. V., & Krasnow, D. (2017). Dancer wellness. Champaign: Human Kinetics.</p> <p>Dance Science Journals Journal of Dance Medicine and Science Medical Problems of Performing Artists IADMS Resource Papers, Bulletins for Teachers IADMS Online Bibliography: https://iadms.knack.com/bibliography</p> <p>Dance Health Blogs https://iadms.org/resources/blog/ http://www.4dancers.org/category/4dancers/dance-wellness/</p> <p>Dance Health Podcasts SciDance podcast by Jasmine Cook DanceWell podcast by Ellie Kusner and Marissa Schaeffer</p>
Learning technologies	<p>There is a D2L site for this course which contains required readings and other relevant class resources and materials (see d2L.ucalgary.ca).</p> <p>To successfully engage in your learning experiences, you are required to have reliable access to the following technology:</p> <ul style="list-style-type: none"> • a computer with a supported operating system, as well as the latest security, and malware updates • a current and updated web browser • current antivirus and/or firewall software enabled • broadband internet connection
Prerequisites	Kinesiology 259 or Dance 359.
Course description	<p>The scientific study of dance and the practical application of scientific principles to dance practice.</p> <p>This course will develop knowledge, comprehension, application and evaluation of:</p> <ul style="list-style-type: none"> • dance movement analysis (i.e., structure, function, role of gravity) • biomechanics (i.e., terminology, musculoskeletal system, postural assessment) • physiology (i.e., neuromuscular system, respiratory system, energy system) • nutrition (i.e., energy sources, hydration, somatotypes, female athlete triad) • psychology (i.e., motivation, confidence, psychological skills) • somatics (i.e., kinaesthetic awareness, movement efficiency, breath patterns) • safe dance practice (i.e., risk identification, injury prevention, injury management) • scientific research (i.e., design, methodology, quantitative, qualitative) <p>Classes will involve both lecture and studio-based activities. In each class, we will be moving, talking, and/or taking notes. Observation and hands on work will facilitate the exploration of ideas. Please take care of your own comfort and dress appropriately.</p>

Course learning outcomes	<p>By the completion of this course, successful students will be able to:</p> <ol style="list-style-type: none"> 1. explain the principles of kinesiology (i.e., anatomical and biomechanical organization) that underline the performance of human movement 2. conduct a comprehensive movement analysis of a dance phrase 3. reflect on the application of kinesiology to their own dance practice 4. integrate issues of health and safety into their own dance practice 5. describe biomechanical, physiological, nutritional, and psychological concepts relevant to dance 6. compare different research designs and scientific methodologies 7. present a dance science research proposal (literature review, objective, research plan, significance) 8. defend the importance of scientific research and its application to a dancer's training, performance enhancement, health and wellness, and injury prevention
Course schedule	See below. Note that our weekly course schedule may be subject to change.
Assessment components	<p><u>Assignment 1: Participation</u> Value: 10% of final grade Description: A participation grade will be awarded for arriving to class on time, being prepared to work, and being fully engaged in class (e.g., involvement in experiential work, note taking, engaging in discussions during lectures, etc.). The completion of various weekly tasks (e.g., keeping a food diary, sharing journal articles, contributing to forums on D2L) is also included. Marks will be deducted if you miss more than one week of class (i.e., 2 classes) – see Assessment Expectations below.</p> <p><u>Assignment 2: Movement Analysis Exam</u> Value: 20% of final grade Date: Wed February 9 2022 at 800am Type: Written exam Description: Short-answer questions will assess your knowledge of material covered in class and weekly readings from weeks 1 – 4. You will conduct a series of kinesiological analyses (e.g., movement planes, major joints, primary muscles) of simple dance movements.</p> <p><u>Assignment 3: Self Profile Essays</u> Value: 40% of final grade; four essays worth 10% each (4 x 10% = 40%) Due on D2L: By 800am on specified dates below Type: Written essay Length: Two pages each Description: The Self Profile Essays will address personal observations made throughout the semester that are specific to the following topics: biomechanics, somatics, nutrition, psychology. Rather than try to change anything, you will simply observe and reflect upon the impact that your observations have had on your current dance training. Content will include: (1) an introduction to the topic as it relates to dance practice, (2) a description of what you have observed in yourself, (3) discussion of how this observation translates or applies to your dancing, and (4) specific recommendations for continued personal improvement in your dance practice, specific to your observation. A minimum of 4 references (including 2 primary sources) will be cited within your report and a reference list following APA formatting will be included.</p>

Each essay will be handed in on D2L Dropbox by 800am.

Essay Due Dates:

1. Biomechanics – Wed Feb 16 2022
2. Somatics – Wed Mar 2 2022
3. Nutrition – Wed Mar 9 2022
4. Psychology – Wed Mar 16 2022

Assessment Criteria

By the completion of this assessment, successful students will be able to:

- describe specific topics within dance science (e.g., biomechanics, nutrition, psychology, somatics)
- analyze a personal observation(s) using appropriate anatomical and scientific terminology
- discuss the impact of this personal observation(s) on current/previous dance practice (e.g., training, performing, teaching)
- formulate detailed and relevant recommendations for improved healthy dance practice in relation to personal observation(s)
- support ALL discussion points with relevant, current dance science literature (i.e., minimum 4 references inclusive of 2 primary sources)
- write a clear and coherent two-page essay with an introduction, body, and conclusion that is free from grammatical and spelling errors

Assignment 3: Research Proposal

Value: 30% of final grade

Due on D2L: By 800am on Wed April 6 OR Fri April 8 2022

Type: Individual Structured Abstract (10%); Group Oral Presentation (20%)

Length: Abstract – 350 words; Presentation – 10min

Description: You will be required to work together in partners to propose a specific dance science research project. The proposal will be referred to in future tense (i.e., will, will be). With reference to material covered in class, current dance science literature and an understanding of scientific methodology, you will discuss why you think this particular research project is necessary (background, objective) and how it could be implemented (research plan – participants, procedures, analysis). The conclusion (significance) will explain the impact that your project will have on future dance practice and dance science research as a whole.

Your research proposal will be assessed in the following ways:

1. Individually, each student will write and submit a 350-word structured abstract of the proposal
2. Together, the group will deliver an oral presentation of the research proposal
3. Participation in Question-and-Answer period following presentation
4. Self-evaluation of overall presentation

Assessment Criteria

By the completion of this assessment, successful students will be able to:

- provide rationale for a proposed research project
- clearly state a research objective(s)
- design a feasible and appropriate research plan to execute the proposed project
- explain the overall significance of the proposed research
- follow standard scientific framework

	<p>Specific to individual structured abstract:</p> <ul style="list-style-type: none"> • write a clear, well-formatted 350-word structured abstract (i.e., objective, research design, setting, participants, exposure/outcome variables, significance) that is free from grammatical and spelling errors <p>Specific to group oral presentation:</p> <ul style="list-style-type: none"> • present effectively (i.e., coherent PowerPoint slides (or equivalent), clear speaking, eye contact, easeful transitions between group members) • answer questions and expand ideas as required
<p>Assessment expectations</p>	<p><u>Expectations for Attendance and Participation:</u> Please refer to the Undergraduate Calendar E.3 Attendance for details.</p> <p><u>Expectations for Writing</u> Writing skills are important to academic study across all disciplines. Consequently, instructors may use their assessment of writing quality as a factor in the evaluation of student work. Please refer to the Undergraduate Calendar E.2 Writing Across the Curriculum policy for details.</p> <p><u>Guidelines for Submitting Assignments</u> All required assignments (i.e., self profile essays, research proposal) will be due on D2L by the specified dates and times.</p> <p><u>Guidelines for Formatting Assignments</u> Self Profile Essays: You will put a title, your name and UCID on a cover sheet. The body of the essay will be at maximum two pages, single sided, 1.5 spaced, 12-point font, with default margins. A separate reference page will complete the essay with a minimum of 4 references will follow APA formatting structure. These references will include at least 2 primary resources (i.e., original research studies).</p> <p>Research Proposal: Individual Structured Abstract – You will put a title, your name and UCID on a cover sheet. The structured abstract will follow standard scientific framework (i.e., objective, research design, setting, participants, exposure/outcome variables, significance). It will be at maximum 350 words, 1.5 spacing, 12-point font, with default margins. Group Oral Presentation – Your 10-minute oral presentation of a potential dance science research project will follow standard scientific framework (i.e., background, objective, research plan – participants, procedures, analysis – and significance). You will be prepared to answer questions from your peers.</p> <p><u>Missed or Late Assignments</u> Late assignments will not be accepted beyond the day that they are due. Pending extenuating circumstances, which have been communicated to Sarah Kenny ahead of time, late submissions will be accepted via email under the pretenses that up to 2% will be deducted each day beyond the due date. Late submissions beyond 5 days will not be accepted.</p>
<p>Grading scale</p>	<p>For the course as a whole, letter grades should be understood as follows, as outlined in the section F.1.1 Grading System and Transcripts of the Calendar: https://www.ucalgary.ca/pubs/calendar/current/f-1.html</p>

	<p>A grade of "C-" or below may not be sufficient for promotion or graduation, see specific faculty regulations.</p> <p>The number of "D" and "D+" grades acceptable for credit is subject to specific undergraduate faculty promotional policy.</p> <p>For DNCE 363, the following numerical rubric will be applied:</p> <p>A+ 96-100 A 91-95 A- 86-90 B+ 81-85 B 76-80 B- 71-75 C+ 66-70 C 61-65 C- 56-60 D+ 51-55 D 46-50 F 0-45</p>
Academic Accommodation	<p>It is the student's responsibility to request academic accommodations according to the University policies and procedures listed below. The Student Accommodations policy is available at https://ucalgary.ca/student-services/access/prospective-students/academic-accommodations.</p> <p>Students needing an accommodation based on disability or medical concerns should contact Student Accessibility Services (SAS) in accordance with the Procedure for Accommodations for Students with Disabilities (https://www.ucalgary.ca/legal-services/sites/default/files/teams/1/Policies-Accommodation-for-Students-with-Disabilities-Procedure.pdf).</p> <p>Students who require an accommodation in relation to their coursework or to fulfill requirements for a graduate degree, based on a Protected Ground other than Disability should communicate this need in writing to their Instructor.</p> <p>SAS will process the request and issue letters of accommodation to instructors. For additional information on support services and accommodations for students with disabilities, visit www.ucalgary.ca/access/.</p>
Academic integrity, plagiarism	<p>Academic Misconduct refers to student behavior which compromises proper assessment of a student's academic activities and includes: cheating; fabrication; falsification; plagiarism; unauthorized assistance; failure to comply with an instructor's expectations regarding conduct required of students completing academic assessments in their courses; and failure to comply with exam regulations applied by the Registrar.</p> <p>For information on the Student Academic Misconduct Policy and Procedure please visit: https://www.ucalgary.ca/legal-services/sites/default/files/teams/1/Policies-Student-Academic-Misconduct-Policy.pdf and https://www.ucalgary.ca/legal-services/sites/default/files/teams/1/Policies-Student-Academic-Misconduct-Procedure.pdf.</p> <p>Additional information is available on the Academic Integrity Website at https://ucalgary.ca/student-services/student-success/learning/academic-integrity.</p>
Internet and electronic communication device	<p>The use of laptop and mobile devices is acceptable when used in a manner appropriate to the course and classroom activities. Please refrain from accessing websites and resources that may be distracting to you or for other learners during class time. Students are responsible for being aware of the University's Internet and email use policy, which can be found at https://www.ucalgary.ca/legal-services/sites/default/files/teams/1/Policies-Acceptable-Use-of-Electronic-Resources-and-Information-Policy.pdf.</p>
Intellectual Property	<p>Course materials created by instructors (including presentations and posted notes, labs, case studies, assignments and exams) remain the intellectual property of the instructor. These materials may NOT be reproduced, redistributed or copied without the explicit consent of the instructor. The posting of course materials to third party websites such as note-sharing sites without permission is prohibited. Sharing of extracts of these course materials with other students enrolled in the course at the same time may be allowed under fair dealing.</p>
Copyright	<p>All students are required to read the University of Calgary policy on Acceptable Use of Material Protected by Copyright (https://www.ucalgary.ca/legal-services/sites/default/files/teams/1/Policies-Acceptable-Use-of-Material-Protected-by-Copyright-Policy.pdf) and requirements of the copyright act (https://laws-lois.justice.gc.ca/eng/acts/C-42/index.html) to ensure they are aware of the consequences of</p>

	<p>unauthorised sharing of course materials (including instructor notes, electronic versions of textbooks etc.). Students who use material protected by copyright in violation of this policy may be disciplined under the Non-Academic Misconduct Policy</p> <p>https://www.ucalgary.ca/pubs/calendar/current/k.html.</p>
Freedom of Information and Protection of Privacy	<p>Student information will be collected in accordance with typical (or usual) classroom practice. Students' assignments will be accessible only by the authorized course faculty. Private information related to the individual student is treated with the utmost regard by the faculty at the University of Calgary.</p>
Student Support	<p>Please visit this link for important information on UCalgary's student wellness and safety resources: https://www.ucalgary.ca/registrar/registration/course-outlines</p>

DNCE 363: Dance Science

Course Schedule Winter 2022 (January ONLINE)

Week	Dates	Wednesday. 800 – 950am	Friday. 800 – 950am
1	Jan 12 + 14	Welcome to DNCE 363 ONLINE Course Introduction Why is science important for dance?	Research Methods Qualitative and quantitative, study design, abstracts ONLINE
2	Jan 19 + 21	Lower Limbs Foot, ankle, knee ONLINE Reading Simmel Ch 5-6, Clippinger Ch 5-6	Body Center Hip, spine ONLINE Reading Simmel Ch 2-4, Clippinger Ch 3-4
3	Jan 26 + 28	Upper Limbs Shoulder, elbow ONLINE Reading Simmel Ch 7, Clippinger Ch 7	Exam Review ONLINE Due Structured Abstract
4	Feb 2 + 4	Movement Analysis Muscular function, role of gravity, postural assessment Reading Clippinger Ch 8, Krasnow 2011	Somatic Practice Breath patterns Reading Batson 2009
5	Feb 9 + 11	Due Movement Analysis Exam	Somatic Practice Kinaesthetic awareness, mental imagery Reading Nordin 2006
6	Feb 16 + 18	Nutrition: Energy sources, somatotypes Reading Simmel Ch 9, Challis 2016 Due Biomechanics Self Profile Essay 1	Nutrition Specific needs of the dancer Guest Kim Wagner Jones, RD Due 3-day Food Diary
7	Feb 23 + 25	TERM BREAK	
8	Mar 2 + 4	Psychology Performance effectiveness, motivation, self-confidence Reading Simmel Ch 8, Nordin-Bates 2014 Due Somatics Self Profile Essay 2	Psychology Body image, burnout, self-care Guest Dr. Angela Grace
9	Mar 9 + 11	Field trip to Human Performance Lab (KNES) Demonstration of equipment Due Nutrition Self Profile Essay 3	No class: Mainstage opens
10	Mar 16 + 18	Field trip to Library (TFDL 440B) Research Methods Literature search and retrieval strategies Guest Marc Stoeckle Due Psychology Self Profile Essay 4	Research Methods Principles of critical appraisal Reading Ekegren 2014
11	Mar 23 + 25	Research Methods Graduate students to present proposals	Research Methods Structure of a scientific study, oral presentation skills
12	Mar 30 + Apr 1	Group tutorials; Guided study time	Group tutorials; Guided study time
13	Apr 6 + 8	Due Research Proposal Presentations Due Structured Abstracts	Due Research Proposal Presentations Due Self-evaluations