

# MATH 272 CALENDAR

## SPRING 2021

### Color coding:

- **Reading assignments to be done before class on the scheduled day.**
- **Quizzes or exams set to take place on those days.**
- **Assignments due on these days.**
- **No class on this day.**

MONDAY	TUESDAY	WEDNESDAY	FRIDAY
Jan 18th Martin Luther King Day.	19th First day, review. Functions in higher dimensions.	20th Curves and velocity/acceleration vectors.	22nd Scalar Fields and partial differentiation.
25th Vector fields and the directional derivative. Gradient.	26th Cont.	27th Divergence and curl of vector fields. Jacobian. Laplacian.	29th <b>Homework 1 due.</b> Cont.
Feb 1st Integration over curves.	2nd Cont.	3rd Potential functions and conservation.	5th <b>Quiz 1.</b>
8th <b>Homework 2 due.</b> Area and volume integrals.	9th Surfaces. Implicit and explicit parameterizations.	10th Tangent planes and normals.	12th Integration over surfaces and flux.
15th Cold day.	16th Cont.	17th <b>Homework 3 due.</b> Cylindrical coordinates.	19th Cont.
22nd Spherical coordinates.	23rd Open.	24th Open	26th <b>Quiz 2</b> <b>Homework 4 due.</b>
Mar 1st Open.	2nd Open.	3rd <b>Oral Exam 1.</b>	5th <b>Oral Exam 1.</b>

MONDAY	TUESDAY	WEDNESDAY	FRIDAY
8th <b>28</b> <ul style="list-style-type: none"> <li>Higher dimensional ODEs.</li> <li>Ch. 5.1, 5.2.</li> </ul>	9th <b>29</b> <ul style="list-style-type: none"> <li>Continuum limit and partial differential equations.</li> <li>Ch. 5.2, 5.3</li> </ul>	10th <b>30</b> <ul style="list-style-type: none"> <li>Continue.</li> </ul>	12th <b>31</b> <ul style="list-style-type: none"> <li>Discussion due: A mathematician's lament.</li> <li>Understanding the               <ul style="list-style-type: none"> <li>Laplace</li> <li>Poisson</li> <li>heat</li> <li>wave</li> </ul>               equations.             </li> </ul>
15th <b>32</b> <ul style="list-style-type: none"> <li>Snow day.</li> </ul>	16th <b>33</b> <ul style="list-style-type: none"> <li>Homework 5 due.</li> <li>d'Alembert's solution to the wave equation.</li> </ul>	17th <b>34</b> <ul style="list-style-type: none"> <li>Separation of variables.</li> </ul>	19th <b>35</b> <ul style="list-style-type: none"> <li>Quiz 3.</li> <li>Discussion due: Homework 5.</li> <li>Discussion due: The interesting utility of geometry and topology.</li> </ul>
22nd <b>36</b> <ul style="list-style-type: none"> <li>Homework 6 due.</li> <li>Time dependent Schrödinger equation.</li> </ul>	23rd <b>37</b> <ul style="list-style-type: none"> <li>Superposition states.</li> </ul>	24th <b>38</b> <ul style="list-style-type: none"> <li>Continue.</li> </ul>	26th <b>39</b> <ul style="list-style-type: none"> <li>Homework 6 discussion due.</li> <li>Discussion due: Mathematics is the sense you never knew you had.</li> <li>Maxwell's equations.</li> </ul>
29th <b>40</b> <ul style="list-style-type: none"> <li>Homework 7 due.</li> <li>PDEs in other coordinate systems.</li> </ul>	30th <b>41</b> <ul style="list-style-type: none"> <li>Continue.</li> </ul>	31st <b>42</b> <ul style="list-style-type: none"> <li>Oral Exam 2.</li> <li>Homework 7 discussion due.</li> <li>No class.</li> </ul>	<div>Apr 2nd</div> <b>43</b> <ul style="list-style-type: none"> <li>Oral Exam 2.</li> <li>Discussion due: Is mathematics invented or discovered?</li> <li>No class.</li> </ul>

MONDAY	TUESDAY	WEDNESDAY	FRIDAY
5th 44 <ul style="list-style-type: none"> <li>• Complex functions and phase.</li> </ul>	6th 45 <ul style="list-style-type: none"> <li>• Function spaces and inner products.</li> </ul>	7th 46 <ul style="list-style-type: none"> <li>• Linear operators and adjoints.</li> </ul>	9th 47 <ul style="list-style-type: none"> <li>• <b>Discussion due: Mathematics and music.</b></li> <li>• Differential operators and domains.</li> </ul>
12th Spring Break.	13th Spring Break.	14th Spring Break.	16th Spring Break.
19th 48 <ul style="list-style-type: none"> <li>• Spectra of differential and Hermitian operators.</li> </ul>	20th 49 <ul style="list-style-type: none"> <li>• Orthonormal bases and projection.</li> </ul>	21st 50 <ul style="list-style-type: none"> <li>• Continue.</li> </ul>	23rd 51 <ul style="list-style-type: none"> <li>• <b>Homework 8 due.</b></li> </ul>
26th 52 <ul style="list-style-type: none"> <li>• Fourier series.</li> </ul>	27th 53 <ul style="list-style-type: none"> <li>• Fourier transform on <math>\mathbb{R}</math> and <math>\mathbb{R}^n</math>.</li> </ul>	28th 54 <ul style="list-style-type: none"> <li>• Dirac delta and fundamental solutions.</li> </ul>	30th 55 <ul style="list-style-type: none"> <li>• <b>Quiz 4.</b></li> <li>• <b>Homework 9 due.</b></li> <li>• <b>Homework 8 discussion due.</b></li> <li>• Continue.</li> </ul>
May 3rd 56 <ul style="list-style-type: none"> <li>• <b>Homework 10 due.</b></li> <li>• Project and review.</li> </ul>	4th 57 <ul style="list-style-type: none"> <li>• Project and review.</li> </ul>	5th 58 <ul style="list-style-type: none"> <li>• <b>Oral Exam 3.</b></li> <li>• <b>Homework 10 discussion due.</b></li> <li>• No class.</li> </ul>	7th 59 <ul style="list-style-type: none"> <li>• <b>Oral Exam 3.</b></li> <li>• No class.</li> </ul>