

# MATH 272 CALENDAR

## SPRING 2022

Color coding:

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

MONDAY	TUESDAY	WEDNESDAY	FRIDAY
<div>Jan 17th</div> <ul style="list-style-type: none"> <li>Martin Luther King Day.</li> </ul>	<div>18th 1</div> <ul style="list-style-type: none"> <li>First day: syllabus and review.</li> <li>Functions in higher dimensions.</li> <li>§10.1</li> </ul>	<div>19th 2</div> <ul style="list-style-type: none"> <li>Curves.</li> <li>Velocity (tangent) and acceleration (normal) vectors.</li> <li>§10.2</li> </ul>	<div>21st 3</div> <ul style="list-style-type: none"> <li>Scalar fields.</li> <li>Partial derivatives.</li> <li>Directional derivatives.</li> <li>§10.3</li> </ul>
<div>24th 4</div> <ul style="list-style-type: none"> <li>Vector fields.</li> <li>§10.4</li> </ul>	<div>25th 5</div> <ul style="list-style-type: none"> <li>Gradient.</li> <li>Level curves.</li> <li>§11.1</li> </ul>	<div>26th 6</div> <ul style="list-style-type: none"> <li>Jacobian.</li> <li>Divergence and curl of vector fields.</li> <li>§11.2</li> </ul>	<div>28th 7</div> <ul style="list-style-type: none"> <li>Laplacian and harmonic functions.</li> <li>Homework 1.</li> <li>§11.3</li> </ul>
<div>31st 8</div> <ul style="list-style-type: none"> <li>Composite functions.</li> <li>§11.4</li> </ul>	<div>Feb 1st 9</div> <ul style="list-style-type: none"> <li>Integration over curves.</li> <li>§11.5</li> </ul>	<div>2nd 10</div> <ul style="list-style-type: none"> <li>Snow day.</li> </ul>	<div>4th 11</div> <ul style="list-style-type: none"> <li>Homework 1 Presentations.</li> </ul>
<div>7th 12</div> <ul style="list-style-type: none"> <li>Integration over curves, continued.</li> </ul>	<div>8th 13</div> <ul style="list-style-type: none"> <li>Potential functions.</li> <li>Conservative fields.</li> <li>§11.6</li> </ul>	<div>9th 14</div> <ul style="list-style-type: none"> <li>Double and triple integrals.</li> <li>§11.7</li> </ul>	<div>11th 15</div> <ul style="list-style-type: none"> <li>Surfaces.</li> <li>Implicit parameterizations.</li> <li>Tangent planes and normals.</li> <li>Homework 2.</li> <li>§12.1</li> </ul>

MONDAY	TUESDAY	WEDNESDAY	FRIDAY
14th <b>16</b> <ul style="list-style-type: none"> <li>• Explicit parameterization of surfaces.</li> <li>• Normals.</li> <li>• §12.2</li> </ul>	15th <b>17</b> <ul style="list-style-type: none"> <li>• Integration over surfaces.</li> <li>• Flux.</li> <li>• §12.3, §12.4</li> </ul>	16th <b>18</b> <ul style="list-style-type: none"> <li>• Continue.</li> </ul>	18th <b>19</b> <ul style="list-style-type: none"> <li>• <b>Homework 2 Presentations.</b></li> </ul>
21st <b>20</b> <ul style="list-style-type: none"> <li>• Coordinate systems.</li> <li>• Cylindrical coordinates.</li> <li>• §13.1</li> </ul>	22nd <b>21</b> <ul style="list-style-type: none"> <li>• Continue.</li> </ul>	23rd <b>22</b> <ul style="list-style-type: none"> <li>• Spherical coordinates.</li> <li>• §13.2</li> </ul>	25th <b>23</b> <ul style="list-style-type: none"> <li>• Continue.</li> <li>• <b>Homework 3.</b></li> </ul>
28th <b>24</b> <ul style="list-style-type: none"> <li>• Open day.</li> </ul>	Mar 1st <b>25</b> <ul style="list-style-type: none"> <li>• <b>Homework 3 Presentations.</b></li> </ul>	2nd <b>26</b> <ul style="list-style-type: none"> <li>• <b>Exam 1.</b></li> </ul>	4th <b>27</b> <ul style="list-style-type: none"> <li>• <b>Exam 1.</b></li> </ul>
7th <b>28</b> <ul style="list-style-type: none"> <li>• Higher dimensional ODEs.</li> </ul>	8th <b>29</b> <ul style="list-style-type: none"> <li>• Continuum limit and partial differential equations.</li> </ul>	9th <b>30</b> <ul style="list-style-type: none"> <li>• Continue.</li> </ul>	11th <b>31</b> <ul style="list-style-type: none"> <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>
14th <ul style="list-style-type: none"> <li>• <b>Spring Break.</b></li> </ul>	15th <ul style="list-style-type: none"> <li>• <b>Spring Break.</b></li> </ul>	16th <ul style="list-style-type: none"> <li>• <b>Spring Break.</b></li> </ul>	18th <ul style="list-style-type: none"> <li>• <b>Spring Break.</b></li> </ul>
21st <b>32</b> <ul style="list-style-type: none"> <li>• d'Alembert's solution to the wave equation.</li> </ul>	22nd <b>33</b> <ul style="list-style-type: none"> <li>• Separation of variables.</li> </ul>	23rd <b>34</b> <ul style="list-style-type: none"> <li>• Time dependent Schödinger equation.</li> </ul>	25th <b>35</b> <ul style="list-style-type: none"> <li>• Superposition states.</li> <li>• <b>Homework 4.</b></li> </ul>
28th <b>36</b> <ul style="list-style-type: none"> <li>• Continue.</li> </ul>	29th <b>37</b> <ul style="list-style-type: none"> <li>• Maxwell's equations.</li> </ul>	30th <b>38</b> <ul style="list-style-type: none"> <li>• Open.</li> </ul>	Apr 1st <b>39</b> <ul style="list-style-type: none"> <li>• <b>Homework 4 Presentations</b></li> </ul>

MONDAY	TUESDAY	WEDNESDAY	FRIDAY
4th <b>40</b> • PDEs in other coordinate systems.	5th <b>41</b> • <b>Homework 5.</b>	6th <b>42</b> • <b>Exam 2.</b>	8th <b>43</b> • <b>Exam 2.</b>
11th <b>44</b> • Complex functions and phase.	12th <b>45</b> • Function spaces and inner products.	13th <b>46</b> • Linear operators and adjoints.	15th <b>47</b> • Differential operators and domains.
18th <b>48</b> • Spectra of differential and Hermitian operators.	19th <b>49</b> • Orthonormal bases and projection.	20th <b>50</b> • Continue.	22nd <b>51</b> • Fourier series. • <b>Homework 6.</b>
25th <b>52</b> • Continue.	26th <b>53</b> • Fourier transform on $\mathbb{R}$ .	27th <b>54</b> • Dirac delta and fundamental solutions.	29th <b>55</b> • <b>Homework 6 Presentations.</b>
May 2nd <b>56</b> • Project and review.	3rd <b>57</b> • <b>Homework 7.</b>	4th <b>58</b> • <b>Exam 3.</b>	6th <b>59</b> • <b>Exam 3.</b>