

```

1 <!DOCTYPE html>
2
3 <html lang="en-US">
4
5 <head>
6     <meta charset="UTF-8">
7     <title>Dave's Web Corner</title>
8     <script type="text/javascript" async
9 src="https://cdnjs.cloudflare.com/ajax/libs/mathjax/2.7.5/latest.js?config=TeX-MML-AM_CHTML"></script
10 >
11     <meta name="keywords" content="mathematics,teaching,differential equations">
12     <meta name="author" content="B. David Redman, Jr.">
13     <meta name="viewport" content="width=device-width, initial-scale=1.0">
14 </head>
15
16 <body>
17
18 <header>
19     <h1>Dave's Web Corner</h1>
20 </header>
21
22 <nav>
23 <a href="http://websites.delta.edu/bdredman/index.html">welcome</a> |
24 <a href="http://websites.delta.edu/bdredman/contact.html">contact</a> |
25 <a href="http://websites.delta.edu/bdredman/semesters.html">semesters</a> |
26 <a href="http://websites.delta.edu/bdredman/mathematics.html">mathematics</a>
27 <br />
28 <a href="../../semesters.html#fall2021">fall 2021</a> |
29 <a href="264home.html">mth 264</a> |
30 <a href="264syllabus.html">syllabus</a> |
31 <a href="264resources.html">resources</a>
32 <br />
33 week
34 <a href="264week01.html">1</a>
35 <a href="264week02.html">2</a>
36 <a href="264week03.html">3</a>
37 <a href="264week04.html">4</a>
38 <a href="264week05.html">5</a>
39 <a href="264week06.html">6</a>
40 <a href="264week07.html">7</a>
41 <a href="264week08.html">8</a>
42 <a href="264week09.html">9</a>
43 <a href="264week10.html">10</a>
44 <a href="264week11.html">11</a>
45 <a href="264week12.html">12</a>
46 <a href="264week13.html">13</a>
47 <a href="264week14.html">14</a>
48 <a href="264week15.html">15</a>
49 <a href="264week16.html">16</a>
50 <hr />
51 </nav>
52
53 <main>
54
55 <a href="../../semesters.html">semesters</a> >
56 <a href="../../semesters.html#fall2021">fall 2021</a> >
57 <a href="264home.html">mth264</a> >
58 <a href="#top" name="week01">week 1</a>
59
60 <h2>MTH-264 Week 1 (August 29-September 4)</h2>
61
62 <ul>
63     <li><a href="#outline">Outline</a>
64     </li>
65     <li><a href="#assessments">Assessments</a>
66     </li>
67     <li><a href="#handouts">Handouts</a>
68     </li>
69     <li><a href="#videos">Videos</a>
70     </li>
71     <li><a href="#technology">Technology</a>
72     </li>
73 </ul>
74
75 <a href="../../semesters.html">semesters</a> >
76 <a href="../../semesters.html#fall2021">fall 2021</a> >
77 <a href="264home.html">mth264</a> >
78 <a href="#top">week 1</a> >
79 <a href="#outline" name="outline">outline</a>
80
81 <h3>Outline</h3>
82
83 <h4>1.1 Modeling via Differential Equations</h4>
84

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85 <ul>
86   <li>recommended:
87     3,
88     4,
89     5,
90     6,
91     7,
92     8,
93     12
94     (details),
95     14,
96     14, 17,
97     18,
98     18 cas,
99     18 alt,
100    20,
101    21,
102    22
103  </li>
104  <li>what is a ...
105    <ul>
106      <li>... differential equation?
107      </li>
108      <li>... first-order system?
109      </li>
110      <li>... initial value problem?
111      </li>
112      <li>... solution?
113      </li>
114    </ul>
115  </li>
116  <li>analytic, qualitative and numerical methods
117    <ul>
118      <li>analytic - brute force solution, an explicit formula for the unknown function
119      </li>
120      <li>qualitative - describing the behavior of solutions even without an explicit formula
121      </li>
122      <li>numerical - approximating solutions to give insight into their behavior
123      </li>
124    </ul>
125  </li>
126 </ul>
127
128 <h4>1.2 Analytic Technique: Separation of Variables</h4>
129
130 <ul>
131   <li>recommended:
132     1,
133     12,
134     13,
135     15,
136     20,
137     21,
138     30,
139     32,
140     34,
141     35, 36,
142     38,
143     39,
144     40,
145     41,
146     42
147   </li>
148   <li>general and particular solutions
149   </li>
150   <li>explicit and implicit solutions
151   </li>
152   <li>verifying solutions
153   </li>
154   <li>manipulating constants and parameters
155   </li>
156   <li>domain and range of solutions
157   </li>
158 </ul>
159
160 <h4>1.3 Qualitative Technique: Slope Fields</h4>
161
162 <ul>
163   <li>recommended:
164     1,
165     3,
166     5,
167     6,
168     7,

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169     8,
170     9,
171     10,
172     12, 13,
173     14,
174     15,
175     16,
176     17,
177     18,
178     22,
179     22 alt
180 </li>
181 <li>the flow of the equation
182 </li>
183 <li>the geometry of a first-order equation
184 </li>
185 <li>integral and autonomous equations and their slope fields
186 </li>
187 </ul>
188
189
190 <a href="../../../semesters.html">semesters</a> >
191 <a href="../../../semesters.html#fall2021">fall 2021</a> >
192 <a href="264home.html">mth264</a> >
193 <a href="#top">week 1</a> >
194 <a href="#assessments" name="assessments">assessments</a>
195
196 <h3>Assessments</h3>
197
198 <ul>
199     <li>Deadlines and File Submission
200         <ul>
201             <li>All assessments are due by 11:59pm on the date indicated
202             </li>
203             <li>Assessments are submitted online to our
204                 <a href="https://www.dropbox.com/request/tOchFYcaZOoY5vNcYj6i">MTH-264
205 Assignments</a>
206                 folder.
207             </li>
208             <li>No late assessments are accepted.
209             </li>
210         </ul>
211     </li>
212     <li>Homework
213         <ul>
214 <!--
215             <li>due Tuesday, May 25:
216                 1.1 - 16,
217                 1.2 - 35 alt,
218                 1.3 - 10 alt
219             </li>
220             <li>due Wednesday, May 26:
221                 1.4 - 1 alt,
222                 1.5 - 15 alt,
223                 1.6 - 15 alt
224             </li>
225             <li>due Thursday, May 27:
226                 1.7 - 1 alt,
227                 1.8 - 11 alt,
228                 1.9 - 27 alt
229             </li>
230 -->
231         </ul>
232     </li>
233     <li>Exams
234         <ul>
235 <!--
236             <li>Exam 1 covers sections 1.1-2.7, due Monday, June 7
237             </li>
238 -->
239         </ul>
240     </li>
241 </ul>
242
243 <a href="../../../semesters.html">semesters</a> >
244 <a href="../../../semesters.html#fall2021">fall 2021</a> >
245 <a href="264home.html">mth264</a> >
246 <a href="#top">week 1</a> >
247 <a href="#handouts" name="handouts">handouts</a>
248
249 <h3>Handouts</h3>
250
251 <ul>
252     <li>Announcements

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253         <ul>
254             <li><a
255 href="https://drive.google.com/file/d/1iz9OwfVp1GwGRWwxqLnu5AJM_7zuqkaE/view?usp=sharing">Schmidt
256 Award</a>
257             </li>
258             <li><a
259 href="https://sites.delta.edu/collegeinfo/RecordsRegistration/SitePages/Graduate%20Student%20Awards.
260 aspx">Math Graduate Award</a>
261             </li>
262             <li><a
263 href="https://delta-edu.zoom.us/rec/play/m9025TwCEZhb0o8--BMQOFsxVEI8pz_WpJZexMq2ns1B1XNhPVU04n-
264 ufSp7Rhmvm_cKMjBPxx-3uJC.IbAO70ZCpV0wWpwD?continueMode=true">Honors Program</a> introduction
265             </li>
266             <li><a
267 href="https://sites.delta.edu/collegeinfo/Academics/TutoringCenter/SitePages/Home.aspx">Tutoring
268 Center</a> services
269             </li>
270         </ul>
271     </li>
272 <!--
273     <li>Class Session Notes
274         <ul>
275             <li>December
276             </li>
277             <li>all class session <a
278 href="https://drive.google.com/drive/folders/1Z4Fd56zL4P1leadExqDh22SKQ-2NZq0?usp=sharing">notes</a>
279             </li>
280         </ul>
281     </li>
282     <li>Office Hour Notes
283         <ul>
284             <li>December
285             </li>
286             <li>all office hour <a
287 href="https://drive.google.com/drive/folders/1iRVy_OF38Xio_kMr7-uiK_mOHlZBEjuA?usp=sharing">notes</a>
288             </li>
289         </ul>
290     </li>
291 -->
292     <li>Technology Tips
293         <ul>
294             <li><a
295 href="https://drive.google.com/file/d/1KBO0D_dkxJrkDENRlDSSXQnPZ_cLkChH/view?usp=sharing">Download
296 and Install Mathematica</a>
297             </li>
298             <li><a
299 href="https://drive.google.com/file/d/1fRNbmsfia3qvjnocAxCfklgo44mQIsQa/view?usp=sharing">Install
300 DETools</a>
301             </li>
302             <li><a
303 href="https://drive.google.com/file/d/1DmPcSemRXs0qowl8ZM7xp01zgfo2SeHZ/view?usp=sharing">TI-89 Slope
304 Fields</a>
305             </li>
306         </ul>
307     </li>
308     <li>Separable Equations
309         <ul>
310             <li><a
311 href="https://drive.google.com/file/d/15WWMbksurv-pX9uTsEFTbzQBnZA_luoE/view?usp=sharing">Basic
312 Separable Equation Examples</a>
313             </li>
314         </ul>
315     </li>
316     <li>Modeling
317         <ul>
318             <li><a
319 href="https://drive.google.com/file/d/1RhWHguGuREcpeXDXuDYsJ36OQ4xWT7iq/view?usp=sharing">Logistic
320 Growth Solution</a>
321             </li>
322         </ul>
323     </li>
324 </ul>
325
326 <a href="../../semesters.html">semesters</a> >
327 <a href="../../semesters.html#fall2021">fall 2021</a> >
328 <a href="264home.html">mth264</a> >
329 <a href="#top">week 1</a> >
330 <a href="#videos" name="videos">videos</a>
331
332 <h3>Videos</h3>
333
334 <ul>
335 <!--
336     <li>Playlists

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337     <ul>
338         <li><a
339 href="https://youtube.com/playlist?list=PLPPKfVf~vBuZ4X-QB8xPbSkZ~2bDopl">MTH-264 Class
340 Sessions</a>
341         </li>
342         <li><a
343 href="https://youtube.com/playlist?list=PLPPKfVf~vBv_sIlad5ZMRLd_b8fLNapE">MTH-264 Videos</a>
344         </li>
345     </ul>
346 </li>
347 <li>Class Sessions
348     <ul>
349         <li>December
350         </li>
351     </ul>
352 </li>
353 -->
354 <li>First Principles
355     <ul>
356         <li><a href="https://youtu.be/zf2_ltuAym8">The MVP of ODEs</a>
357         </li>
358         <li><a href="https://youtu.be/kCZXP2JZGBI">Integrating Linear Factors</a>
359         </li>
360         <li><a href="https://youtu.be/YHteUwTbfLk">Verifying Implicit Solutions</a>
361         </li>
362         <li><a href="https://youtu.be/-893CUZ-t0I">Domain of a Solution</a>
363         </li>
364         <li><a href="https://youtu.be/ODHm8M-E43A">1.2 - 13 alt</a>
365         </li>
366         <li><a href="https://youtu.be/EPdhKzA4Bkg">1.2 - 35</a>
367         </li>
368         <li><a href="https://youtu.be/AYSCR8P_d6A">Extracting Explicit from Implicit</a>
369         </li>
370         <li><a href="https://youtu.be/8SQsRbAvss8">Equilibrium Solutions</a>
371         </li>
372         <li><a href="https://youtu.be/phQhk7arMvA">1.3 - 15</a>
373         </li>
374     </ul>
375 </li>
376 <li>Mixing Problems
377     <ul>
378         <li><a href="https://youtu.be/DBC0ZDCc7jE">Setting up a Mixing Problem</a>
379         </li>
380         <li><a href="https://youtu.be/luGetXw5mSY">Solving a Mixing Problem</a>
381         </li>
382         <li><a href="https://youtu.be/5qyE9IHHQ-c">Graphing a Mixing Problem</a>
383         </li>
384     </ul>
385 </li>
386 <li>all <a href="https://youtube.com/playlist?list=PLPPKfVf--vBv_sIlad5ZMRLd_b8fLNapE">MTH-264
387 Videos</a>
388     (YouTube playlist)
389 </li>
390 </ul>
391
392 <a href="../../semesters.html">semesters</a> >
393 <a href="../../semesters.html#fall2021">fall 2021</a> >
394 <a href="264home.html">mth264</a> >
395 <a href="#top">week 1</a> >
396 <a href="#technology" name="technology">technology</a>
397
398 <h3>Technology</h3>
399
400 <ul>
401     <li>Communication
402         <ul>
403             <li><a href="https://zoom.us/">Zoom</a>
404             </li>
405             <li><a
406 href="https://www.microsoft.com/en-us/p/office-lens/9wzdncrfj3t8?activetab=pivot:overviewtab">
407 Microsoft Lens</a>
408             </li>
409             <li><a href="https://support.apple.com/en-us/HT205773">Apple Notes</a>
410             </li>
411             <li><a href="https://acrobat.adobe.com/us/en/mobile/scanner-app.html">Adobe Scan</a>
412             </li>
413             <li><a
414 href="https://support.zoom.us/hc/en-us/articles/115004954946-Joining-and-participating-in-a-webinar-
415 attendee-">Joining a Zoom Webinar</a>
416             </li>
417             <li><a href="https://www.dropbox.com/request/tOchFYcaZ0oY5vNcYj6i">MTH-264
418 Assignments</a> folder
419             </li>
420         </ul>

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421     </li>
422     <li>GeoGebra
423         <ul>
424             <li><a href="https://www.geogebra.org/">GeoGebra</a>
425             </li>
426             <li><a
427 href="https://drive.google.com/folderview?id=0B182glaavEa0ejV6MzJKMnJiSkk&usp=sharing">Exercise-01-01
428 -18.ggb</a>
429             </li>
430             <li><a
431 href="https://drive.google.com/folderview?id=0B182glaavEa0ejV6MzJKMnJiSkk&usp=sharing">Slope
432 Fields.ggb</a>
433             </li>
434             <li><a
435 href="https://drive.google.com/folderview?id=0B182glaavEa0ejV6MzJKMnJiSkk&usp=sharing">Autonomous and
436 Integral Example.ggb</a>
437             </li>
438         </ul>
439     </li>
440     <li>Desmos
441         <ul>
442             <li><a href="https://www.desmos.com/calculator/avmqn2gto5">Exercise 1.1 #16</a>
443             </li>
444             <li><a href="https://www.desmos.com/calculator/bxggdz0sig">Exercise 1.2 #38 alt</a>
445             </li>
446         </ul>
447     </li>
448     <li>Mathematica
449         <ul>
450             <li><a
451 href="https://drive.google.com/folderview?id=0B182glaavEa0c29NNmM5UC1aMFE&usp=sharing">Illustrating
452 the DSolve Command.nb</a>
453             </li>
454             <li><a
455 href="https://drive.google.com/folderview?id=0B182glaavEa0c29NNmM5UC1aMFE&usp=sharing">Slope Fields
456 and Direction Fields.nb</a>
457             </li>
458             <li><a
459 href="https://drive.google.com/folderview?id=0B182glaavEa0c29NNmM5UC1aMFE&usp=sharing">Slope Fields
460 and Solutions.nb</a>
461             </li>
462             <li><a
463 href="https://drive.google.com/folderview?id=0B182glaavEa0c29NNmM5UC1aMFE&usp=sharing">264-
464 mathematica-01-03-alt.nb</a>
465             </li>
466             <li><a
467 href="https://drive.google.com/folderview?id=0B182glaavEa0c29NNmM5UC1aMFE&usp=sharing">Logistic
468 Growth with Harvesting.nb</a>
469             </li>
470             <li><a
471 href="https://drive.google.com/folderview?id=0B182glaavEa0c29NNmM5UC1aMFE&usp=sharing">Autonomous and
472 Integral Equations.nb</a>
473             </li>
474         </ul>
475     </li>
476 </ul>
477 </main>
478 </main>
479 <footer>
480 <hr />
481 <a href="mailto:bdredman@delta.edu">e-mail</a> |
482 <a href="http://www.delta.edu">delta college</a> |
483 <a href="http://websites.delta.edu/bdredman">websites.delta.edu/bdredman</a> |
484 &copy; 2021 B. David Redman, Jr., Professor, Mathematics, Delta College
485 </footer>
486 </body>
487 </body>
488 </html>
489 </html>
490 </html>

```