**Physics 10240 Elementary Cosmology Spring 2019**
**Course Outline**

| Date | Book | Topic | Pages |
|---|---|---|---|
| January 15 | Thorne | Relativity of Space and Time | 60-86 |
| January 17 | Thorne | Warped Space-Time | 87-120 |
| January 22 | Thorne | Black Holes & White Dwarfs | 121-163 |
| January 24 | Thorne | Implosion | 164-208 |
| January 29 | Thorne | Final State? | 209-257 |
| January 31 | Thorne | Golden Age | 258-299 |
| February 5 | Thorne | The Search | 300-356 |
| February 7 | Thorne | Gravitational Radiation | 357-411 |
| February 12 | Thorne | Reality & Hawking Radiation | 412-448 |
| February 14 | Thorne | Singularities | 449-482 |
| February 19 | Thorne | Time Machines | 483-528 |
| February 21 | | DVT presentation | |
| February 26 | Wilczek | Reply to Keats | Intro., pp. 1-22 |
| February 28 | Wilczek | Uniformity of Structure | 23-52 |
| March 5 | Wilczek | Transformations & Inevitability | 53-96 |
| March 7 | Midterm Exam | | |
| March 12 | Break | | |
| March 14 | Break | | |
| March 19 | Wilczek | Quantal Reality | 98-134 |
| March 21 | Wilczek | Radical Uniformity | 137-170 |
| March 26 | Wilczek | Transforming Principles | 171-206 |
| March 28 | Wilczek | Gluons & Asymptotic Freedom | 207-228 |
| April 2 | Wilczek | Symmetry Lost & Found | 231-275 |
| April 4 | Wilczek | Macrocosm & Quest | 277-341 |
| April 9 | Kolata | Scientific Method & Early Astronomy | 1-1 2-8 |
| April 11 | Kolata | Nebulae & Cosmic distances & Relativity | 3-1 5-10 |
| April 16 | Kolata | Big Bang & CMB & Dark Matter | 6-1 8-4 |
| April 18 | Kolata | Standard model & Early big bang | 9-1 10-12 |
| April 23 | Kolata | Inflation & Dark energy | 11-6 12-4 |
| April 25 | Kolata | Higher dimensions & String theory & Black holes | 13-1 15-10 |
| April 30 | | DVT presentation | |
| May 8 | | Final Exam | 10:30 am - 12:30 pm |

**Important Dates**

| Date | What |
|---|---|
| Report Due | February 28 |
| Midterm Exam | March 7 |
| Spring Break | March 9-17 |
| DVT presentations | February 21 and April 30 |
| Final Exam | May 8 |

**Web Page**

https://www3.nd.edu/∼losecco/Cosmology/phy10240.html