```
plot(allMetricsAndQuestions["numberJavaFiles"], "Java Files", "Java Files", ""
In [340]:
                                               Java Files
           25
           20
           15
           10
            5
                 2016
                                2017
                                                2018
                                                               2019
                                                                               2020
          plot(allMetricsAndQuestions["readability"], "Readability per Class", "", "",
In [341]:
                                         Readability per Class
           0.04
           0.03
           0.02
           0.01
           0.00
                                 2017
                                                 2018
                                                                2019
                  2016
                                                                               2020
          plot(allMetricsAndQuestions["CountLine"], "Physical Lines per Class", "", "",
In [342]:
                                       Physical Lines per Class
           500
           400
           300
           200
                                 2017
                  2016
                                                2018
                                                                2019
                                                                               2020
```

```
plot(allMetricsAndQuestions["CountLineCode"], "LOC per Class", "LOC per Class"
In [343]:
                                           LOC per Class
           400
           350
           300
           250
           200
           150
           100
                 2016
                                2017
                                               2018
                                                              2019
                                                                            2020
          plot(allMetricsAndQuestions["CountLineComment"], "CLOC per Class", "", "")
In [344]:
                                          CLOC per Class
           100
            90
            80
            70
            60
            50
                 2016
                                2017
                                               2018
                                                              2019
                                                                            2020
          plot(allMetricsAndQuestions["CountClassCoupled"], "CBO per Class", "", "")
In [345]:
                                          CBO per Class
           15
           14
           13
           12
           11
           10
                2016
                               2017
                                              2018
                                                             2019
                                                                            2020
```

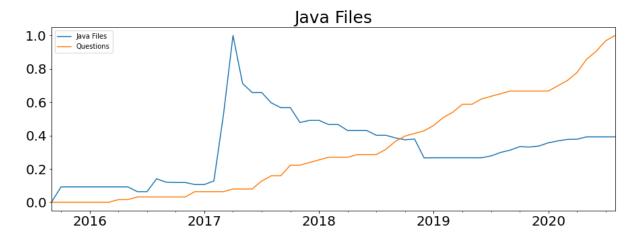
```
plot(allMetricsAndQuestions["CountClassDerived"], "NOC per Class", "", "")
                                              NOC per Class
           0.0175
           0.0150
           0.0125
           0.0100
           0.0075
           0.0050
           0.0025
           0.0000
                                   2017
                                                  2018
                                                                2019
                                                                               2020
                    2016
          plot(allMetricsAndQuestions["CountDeclMethodAll"], "RFC per Class", "", ""
In [347]:
                                             RFC per Class
           37.5
           35.0
           32.5
           30.0
           27.5
           25.0
           22.5
           20.0
           17.5
                  2016
                                  2017
                                                2018
                                                                2019
                                                                               2020
          plot(allMetricsAndQuestions["MaxInheritanceTree"], "DIT per Class", "", "",
In [348]:
                                             DIT per Class
           1.25
           1.20
           1.15
           1.10
           1.05
                                 2017
                                                2018
                  2016
                                                                2019
                                                                               2020
```

```
plot(allMetricsAndQuestions["PercentLackOfCohesion"], "LCOM per Class", "", ""
In [349]:
                                          LCOM per Class
           50
           40
           30
           20
           10
                2016
                               2017
                                              2018
                                                             2019
                                                                            2020
          plot(allMetricsAndQuestions["SumCyclomatic"], "WMC per Class", "", "")
In [350]:
                                          WMC per Class
           60
           50
           40
           30
           20
                2016
                               2017
                                              2018
                                                             2019
                                                                            2020
          plot(allMetricsAndQuestions["CountDeclClass"], "Classes", "", "")
In [351]:
                                              Classes
           50
           40
           30
           20
           10
            0
                2016
                               2017
                                              2018
                                                             2019
                                                                            2020
```

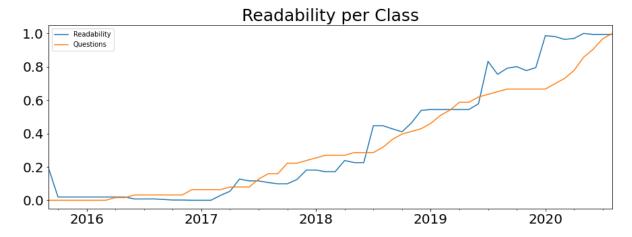
Plotting metrics and questions

```
In [352]:
          def plot(metrics, questions, metric, title, ylabel, xlabel):
              subplot = metrics.plot(figsize=(15,5), fontsize=20, legend=True, label=met
          ric)
              subplot = questions.plot(figsize=(15,5), fontsize=20, legend=True, label=
          "Questions")
              subplot.set_title(title, fontsize=25)
              subplot.set ylabel(ylabel, fontsize=20)
              subplot.set xlabel(xlabel, fontsize=20)
                    subplot.figure.savefig(metric+".pdf",bbox_inches = 'tight')
```

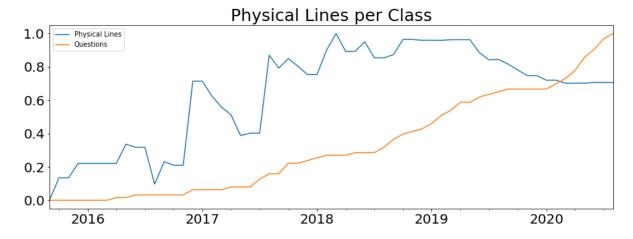
In [353]: plot(AllMetricsAndQuestionsNormalized["numberJavaFiles"], AllMetricsAndQuestio nsNormalized["questions"], "Java Files", "Java Files", "", "")



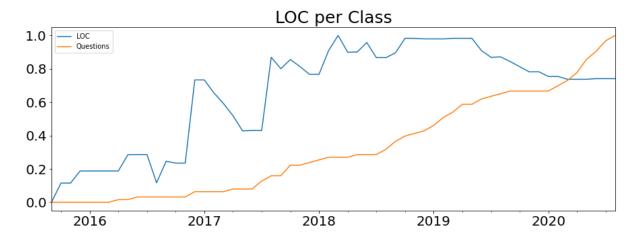
plot(AllMetricsAndQuestionsNormalized["readability"], AllMetricsAndQuestionsNo In [354]: rmalized["questions"], "Readability", "Readability per Class", "", "")



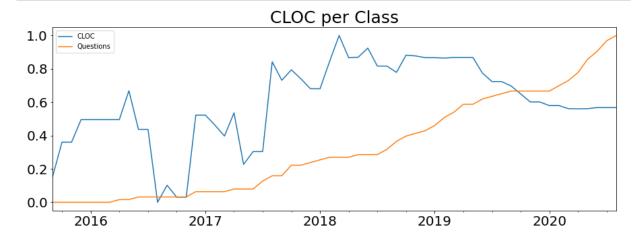
plot(AllMetricsAndQuestionsNormalized["CountLine"], AllMetricsAndQuestionsNorm In [355]: alized["questions"], "Physical Lines", "Physical Lines per Class", "", "")



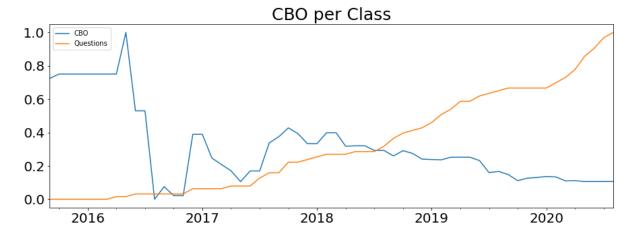
plot(AllMetricsAndQuestionsNormalized["CountLineCode"], AllMetricsAndQuestions In [356]: Normalized["questions"], "LOC", "LOC per Class", "", "")



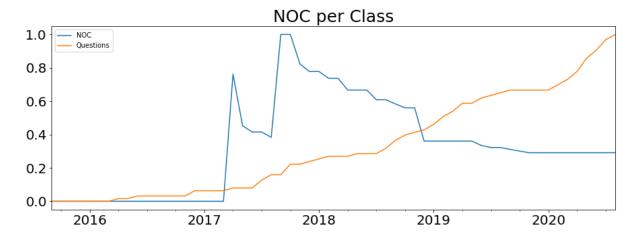
In [357]: onsNormalized["questions"], "CLOC", "CLOC per Class", "", "")



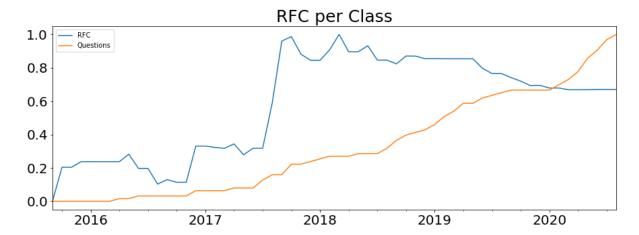
plot(AllMetricsAndQuestionsNormalized["CountClassCoupled"], AllMetricsAndQuest In [358]: ionsNormalized["questions"], "CBO", "CBO per Class", "", "")



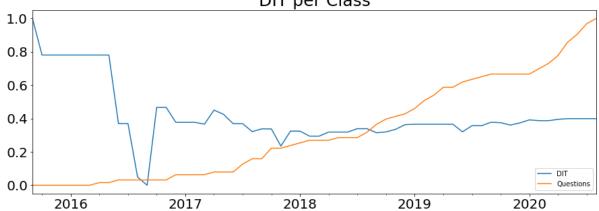
plot(AllMetricsAndQuestionsNormalized["CountClassDerived"], AllMetricsAndQuest In [359]: ionsNormalized["questions"], "NOC", "NOC per Class", "", "")



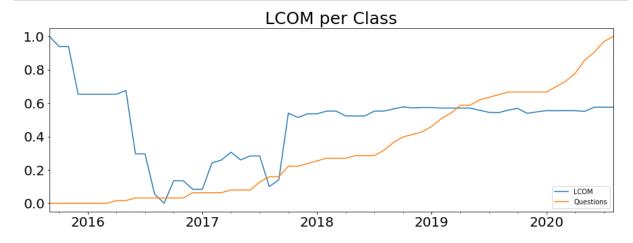
 $\verb|plot(AllMetricsAndQuestionsNormalized["CountDeclMethodAll"], AllMetricsAndQuestionsNormalized["CountDeclMethodAll"], AllMetricsAndQuestion$ In [360]: tionsNormalized["questions"], "RFC", "RFC per Class", "", "")



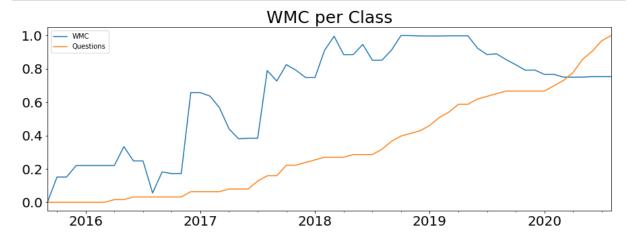
plot(AllMetricsAndQuestionsNormalized["MaxInheritanceTree"], AllMetricsAndQues In [361]: tionsNormalized["questions"], "DIT", "DIT per Class", "", "") DIT per Class



plot(AllMetricsAndQuestionsNormalized["PercentLackOfCohesion"], AllMetricsAndQ In [362]: uestionsNormalized["questions"], "LCOM", "LCOM per Class", "", "")



In [363]: Normalized["questions"], "WMC", "WMC per Class", "", "")



plot(AllMetricsAndQuestionsNormalized["CountDeclClass"], AllMetricsAndQuestion
sNormalized["questions"], "Classes", "Classes", "") In [364]:

